19

1897. 1897.

ANNUAL REPORT

OF THE

Medical Officer of Health,

FOR THE

BOROUGH OF CREWE,

BY

MEREDITH YOUNG,

M.D., MAST. SURG., D.P.H., &c.

Fellow of the Incorporated Society of Medical Officers of Health ;
Hon. Member Sanitary Inspectors' Association, &c., &c.

MEDICAL OFFICER OF HEALTH TO THE BOROUGH.

MEDICAL SUPERINTENDENT BOROUGH HOSPITALS.

CREWE :
Wilmot Eardley, Printer, Chester Bridge.
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BOROUGH OF CREWE.

HEALTH COMMITTEE.

1896-97.

Chairman—

The Mayor (Alderman W. McNeill, J.P.

Alderman J. Briggs, J.P.
,, A. P. Cotterill.
,, T. Latham.
Councillor G. Bailey.
,, J. A. Bond.
,, J. Clare.
,, J. F. Fear.
,, J. Hallard.
,, J. Harford.
,, J. Jones.

Alderman J. Pedley, J.P.
and
,, H. Wallwork, J.P.
Councillor J. H. Moore.
,, C. H. Pedley, C.C.
,, J. Robertson, J.P.
,, T. Smith.
,, P. Swinton, J.P.
and
,, E. Wilson.

HOSPITAL SUB-COMMITTEE.

Councillor Henry Taylor. Alderman W. McNeill, J.P.
Councillors J. Clare, J. F. Fear, J. Hallard, J. Harford,
C. H. Pedley, C.C., T. Smith, and P. Swinton, J.P.

Sanitary Inspector—

William Urquhart.

BOROUGH OF CREWE.

Memoranda.

	Area.	Estimated Population, 1897.
Central Ward	134 acres,	10,395
West Ward	676 ,,	9,280
North Ward	942 ,,	9,790
South Ward	441 ,,	10,260
	2193	39,725

Height above Sea-level.

Sewage Farm	125 feet.
The Valley	145 ,,
Market Hall	179 ,,
Isolation Hospital	182 ,,
Nantwich Road	189 ,,
Hightown	200 ,,

Population at Census, 1891	32,783
Estimated Population at Midsummer, 1897	39,725
Area in acres	2,193
Birth-rate per 1,000 living	32·17
Death-rate ,, ,, ...	15·77
Death-rate from Zymotic diseases	2·81
Deaths under 1 year to 1,000 births	146
Deaths under 5 years per cent. of total deaths	45.8
Number of persons to the acre	18
Estimated increase of population since Mid-year, 1896 ...	1,535 persons.
Plans of new dwelling-houses passed in 1897	441

Rateable value of Borough (Houses, &c.), 1897 ...	£123,096	5	0
ditto ditto (Land) ,, ...	£2,741	2	0
Total	£125,837	7	0

Charter of Incorporation granted April 27th, 1877.

Commission of the Peace granted April 7th, 1881.

BOROUGH OF CREWE.

Municipal Offices,
Earle Street,
March, 1898.

To the Chairman and Members of the Health Committee.

Gentlemen,

I have pleasure in submitting for your consideration my first Annual Report on the health and sanitary condition of the Borough.

The past year has been, in all departments of the Corporation, one of exceptional activity. It has witnessed the completion of old schemes and the inauguration of new ones for the better protection of the health of the public.

An Isolation Hospital has now been added to your local assets, and has already—during the few months it has been open—amply justified its existence. In a town such as this, with its large working-class population, it is bound to prove an inestimable boon. Already it can be said that it has saved lives which would otherwise undoubtedly have been lost, that it has lessened sickness and suffering, and that it has prevented the spread of dangerous infectious disease.

The provision of public Recreation Grounds, too, will supply a want long felt by the large child-population of this town, and your Council are to be congratulated on having secured such excellent sites for the purpose. The money expended upon these things will come back as does all money spent upon sanitation, with immeasurable interest to the public purse in the shape of a saving of human life and an increase in the health capital of the community. It is not too much to say that had it not been for the Isolation Hospital we should have had to face a severe epidemic of scarlet fever during the last quarter of the year.

THE BIRTH-RATE—32·17 per thousand—compared with that for England and Wales (29·7), is a fairly high one, though it is slightly below the average of the preceding ten years (33·67).

THE DEATH-RATE—15·77 per thousand—is, however, better than the average rate for the preceding ten years (16·22), and compared with the urban death-rate for England and Wales (18·2), and the general death-rate also (17.4), as well as those of surrounding towns (see Table

No. 33), it is distinctly favourable. It has been largely augmented by the prevalence of whooping cough in Spring, and by the still greater prevalence of diarrhœa in the late Summer and early Autumn.

From Table Nos. 31 and 32, which have been worked out at considerable trouble, you will see that, taking the death-rate for 1897 as compared with the average rate for the five years 1892–1896, there is a net gain of 0·89 per thousand. Expressed in another way, 35 human lives have been saved in the year 1897 which would have been lost had the conditions of life of the five years 1892–1896 been maintained during 1897.

I need not comment on the many minor matters which have engaged your attention during the year. These have been dealt with in the usual Monthly Reports, and in the text of this Report you will find them summarised.

In the Report I have followed, in the main, on the lines laid down by my predecessor, and indeed, have utilised many statistics which he had prepared before the termination of his office. A few new features have been introduced, more particularly in the statistical portion, with a view of making that part more interesting and intelligible.

You will see from the text of the Report that I advise your Committee to use no time in going into the question of providing a REFUSE DESTRUCTOR. In a number of towns the working of such a Destructor, with an electric lighting installation, has proved a most happy combination.

Another matter which calls for attention is the provision of a PUBLIC SLAUGHTER-HOUSE. I am convinced that there is a very urgent need for this, and that it could be made self-supporting without much effort.

The most important matter of all, however, is that of the re-construction of a number of the old cess-pool privies, fixed receptacles, 'mixens,' and the like, which seriously threaten the health and the lives of the inhabitants of the town. Both from an economical and a health point of view, it is highly desirable that these abominable relics of an age of ignorance should be swept away and replaced by a system of water-carriage, which will bring health, convenience and cleanliness, combined with economy, in its train. A special report on this subject will be presented to you in a very short time.

I desire to acknowledge in the heartiest manner possible the generous support I have received from your Committee—support which renders work a real pleasure, and without which much of the work which usually falls to the lot of a Health Officer would be intolerable or impossible. The number of Health and Hospital and Sub-Committee Meetings which have been held has been a very large one, and, inasmuch as they invariably necessitate considerable preparation, have proved a severe tax on your officials. Still more so must they have encroached upon the valuable time of your Members, and of your Chairman in particular.

I sincerely trust that at an early date your Committee will be able to add to the staff at my disposal. The work of the department has grown considerably even in my short experience of it, and at times it gets completely beyond us. The result is that something has to be and to and the consequences of that neglect may be serious to life neglected, property.

I desire also to record my warmest thanks for the invaluable help I have received from brother officials. More particularly do I wish to place on record my appreciation of the work done by your Chief Inspector, Mr. Urquhart, whose energy, loyalty, tact, and conscientious hard work are known better by myself than by anyone else, for he has been on numberless occasions a veritable right hand to me.

I am, Mr. Chairman and Gentlemen,

Yours faithfully,

Meredith Young

Annual Report of Medical Officer of Health,

For 1897.

Population.

It is extremely difficult to give a correct estimate of population in a town such as this, where we have not had the advantage of a recent census enumeration. The statistics in this report are based upon a population of **39,725,** obtained as follows :—

Houses on Rate Books (Table 2)	8163
Empty houses (Table 1)	218
Total occupied houses	7945
Persons per house (Census 1891)	5
Population	39725

I cannot say that I think this estimate very far out—so far, for example, as to seriously affect statistical data. This town is peculiar in possessing an exceptionally large population at the "reproductive period" of life—at ages 25 to 65 years, that is : the birthrate is in consequence a high one, and, inasmuch as the majority of children born survive, even under adverse conditions, the population is a rapidly increasing one. The large number of new houses constantly being built, and the comparatively small number of uninhabited houses in the town are both facts which strengthen this conclusion.

New Houses.

Plans passed	1891	139
,,	1892	169
,,	1893	157
,,	1894	238
,,	1895	283
,,	1896	317
,,	**1897**	**441**

The estimated population of the Wards :—

Central	10,395
West	9,280
North	9,790
South	10,260
	39,725

Empty Houses.

The Assistant Overseer (Mr. A. Maywhort) has again been good enough to supply the following list of houses empty at Midsummer, 1897 :—

TABLE 1.

Rateable Value.	Under £5.	£5, under £10.	£10, under £20.	£20, under £30.	£30, under £40.	Total.
Central Ward ...	...	34	3	...	...	37
West Ward	2	44	5	...	...	51
North Ward ...	4	65	3	...	...	72
South Ward... ...	...	42	15	...	1	58
Borough of Crewe.	6	185	26	...	1	218
Empty houses, per cent. of houses on Rate Books at each group.	3·8	3·0	1·7	...	0·9	2·6

TABLE 2.

Number of Houses on the Rate Books.

	Year ended Mar. 25th, 1897.	Year ended Mar. 25th, 1898.
Houses rated under ... ... £5 per annum ...	154 ...	154
,, ,, at £5 and under £10 ,, ...	6051 ...	6177
,, ,, £10 ,, £20 ,, ...	1528 ...	1640
,, ,, £20 ,, £30 ,, ...	229 ...	233
,, ,, £30 ,, £40 ,, ...	95 ...	98
,, ,, £40 ,, £50 ,, ...	46 ...	48
,, ,, £50 ,, £60 ,, ...	15 ...	17
,, ,, £60 ,, £70 ,, ...	15 ...	15
,, ,, £70 ,, £80 ,, ...	10 ...	10
,, ,, £80 ,, £90 ,, ...	4 ...	4
,, ,, £90 ,, £100 ,, ...	5 ...	5
,, ,, £100 ,, £200 ,, ...	10 ...	10
,, above £200	1 ...	1
	8163	8412

The number of houses added to the rate books up to March 25th, 1897, was 296; from March, 1897, to March, 1898, 249 more have been added.

The rateable value of the Borough in 1897 was £125,837 7s. 0d.; an increase of £1345 7s. 0d. upon that of £1896.

Births.

The number of births registered during the year was 1278, namely: 651 of males, and 627 of females, equal to a birth-rate per thousand per annum of 32·17; of these 1278 births, 58 were illegitimate, the percentage of illegitimacy being 4·53, a slight increase on previous years.

The birth-rate as compared with the average of the previous ten years is 0·50 per thousand lower. Compared with that for England and Wales during 1897—29·7, it is a fairly high one.

Table 3.—Comparing the actual number of births and the birth-rate with those of previous years—

	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897
1st Qr.	281	229	263	236	240	264	273	288	290	303	271	329
2nd ,,	270	252	237	239	230	256	262	342	300	320	314	352
3rd ,,	236	230	233	232	245	255	284	305	313	317	295	293
4th ,,	242	217	221	223	207	222	226	293	312	297	320	304
Whole year	1029	928	954	930	922	997	1045	1228	1215	1237	1200	1278
Birth-rate for whole year.	31·4	34·0	34·6	33·1	32·4	33·8	35·6	34·7	33·7	33·4	31·4	32·17

Deaths.

During the year there have been registered within the Borough 617 deaths, namely:—304 of males, and 313 of females. The death-rate therefore for the Borough would be 15·89 per thousand of the inhabitants. But to the above figures must be added 16 deaths, 12 of males and 4 of females, which took place in the Nantwich Union Workhouse. This addition makes the total number of deaths 633, namely, 316 of males and 317 of females. There were also six deaths of non-residents within the Borough, 3 of males and 3 of females. Excluding these the correct number of deaths within the Borough becomes 627, 313 of males and 314 of females. The corrected death-rate therefore is 15·77. Throughout the report this correction has been applied to the number of deaths, except it be otherwise stated. The average death-rate for the ten years 1887 to 1896 was 16.22, so that during 1897 was 0·45 per thousand below the average. The death-rates of England and Wales were :—

General death-rate throughout the country ...	17·4
Urban death-rate	18·2
Rural death-rate	15·8

Illegitimate Deaths.

Of the 627 deaths, 11 were in illegitimate children, 10 being in children under one year of age, and 1 in a child aged 16 months. The deaths of illegitimate children were therefore responsible for 1·75 per cent. of the total death-rate.

Particulars of Eleven Illegitimate Deaths.

Age.	Sex.	Cause of Death.
6 months ...	M. ...	Broncho-Pneumonia.
1 day ...	F. ...	Debility.
16 months ...	M. ...	Pneumonia : Convulsions.
19 days ...	M. ...	Gastro-Enteritis : Exhaustion.
5 months ...	F. ...	Tabes Mesenterica : Exhaustion.
3 months ...	F. ...	Diarrhœa.
6 months ...	M. ...	Infantile Diarrhœa.
6 months ...	F. ...	Bilious Diarrhœa : Exhaustion.
15 days ...	F. ...	Convulsions.
4 months ...	F. ...	Diarrhœa Infantilis : Convulsions.
9 months ...	F. ...	Scarlet Fever.

Still-born Children.

The number of still-born children brought to the Cemetery during 1897 was 56. The record of the previous seven years is as under :—

1890 ...	36	1894 ...	37
1891 ...	30	1895 ...	71
1892 ...	51	1896 ...	65
1893 ...	48		

TABLE 4.—Monthly death-rate from all causes.

	1893.	1894.	1895.	1896.	**1897.**
January	16·6	21·9	16·1	15·0	**15·4**
February	16·9	15·0	19·3	14·4	**21·4**
March	26·4	14·6	18·7	13·2	**14·8**
April ...	20·0	12·0	16·7	12·0	**17·2**
May ...	21·7	12·0	13·1	15·3	**12·38**
June ...	22·0	14·3	7·8	11.3	**11·8**
July ...	25·1	15·6	14·4	13·1	**11·1**
August	16·9	12·6	20·0	12.0	**24·1**
September	11·2	12·0	18·8	7·8	**16·4**
October	15·6	10·6	17·1	16·0	**13·9**
November	17·9	16·0	17.5	20·7	**16·4**
December	24·7	16·6	16·5	25·1	**13·7**

TABLE 5.—Comparing the actual number of deaths, and the death-rate with those of previous years :—

	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897
1st Qr. ...	113	110	133	151	138	111	171	171	154	171	137	182
2nd „ ...	85	102	85	114	77	127	143	193	115	115	125	141
3rd „ ...	136	122	94	92	97	81	107	158	121	164	107	166
4th „ ...	107	137	112	106	131	124	106	172	130	158	199	138
Whole year	441	471	424	463	443	443	527	694	520	608	568	627
Death-rate for whole year.	16·4	17·3	15·3	16·5	15·4	15·0	17·9	19·6	14·4	16·4	14·8	15·77

Infant Mortality.

The loss of child life in the Borough during the past year shews a gain on previous years, the mortality of infants under one year being but 146 per 1,000 of the registered births, as compared with the following mortality for the five preceding years :—

1892	... 155	1895	... 160
1893	... 170	1896	... 138
1894	... 143	(Average of above 5 years, 153)	

1897 ... ... 146.

This reduction becomes the more remarkable when we consider that whooping cough was rife in the early part of the year, and diarrhœa was more severe in the late summer than it has ever been in the town. It is still an unduly high rate, however, and it indicates that about one-seventh of the children born have not survived the first year of life.

Hints on Feeding and Management of Infants.

Your Committee, after the consideration of a Special Report upon the prevalence of Epidemic Diarrhœa, decided to print and circulate 3,000 stout cloth-backed cards on the above subject. The Registrar of Births and Deaths has kindly consented to give one to each person registering a birth, and I have supplied the newly-appointed Parish Nurse with a number. I am confident that good result will follow on this action—slowly, possibly, but surely.

Municipal bodies throughout the whole country are now turning their attention to this question of Infant Mortality, and in a number of the larger towns Female Inspectors have been appointed to give practical instruction in the management and feeding of infants.

In that part of my Report dealing with diarrhœa you will find further observations on this subject.

A glance at the diagram in which the principal mortality statistics since 1874 are given will shew how a rise in the general death-rate is accompanied by a rise in the infant mortality, and also by a rise in the diarrhœa mortality.

Table 6.—Apportioning the Deaths during 1897 to the Wards, giving the Death-rate and number of persons per acre. (Deaths of 16 residents dying outside district are not included in this Table).

Ward ... Persons per acre ...	Central. 77		West. 13		North. 10		South. 23	
	Number of Deaths.	Death-rate.	Number of Deaths.	Death-rate.	Number of Deaths.	Death-rate.	Number of Deaths.	Death-rate.
1st Qr. ...	45	18·0	56	25·0	38	16·9	37	15·3
2nd ,, ...	39	15·1	27	11·9	37	16·4	33	13·4
3rd ,, ...	39	15·1	48	21·5	40	17·8	38	15·6
4th ,, ...	28	10·8	36	15·8	44	19·6	26	10·5
Whole year	151	14·8	167	18·4	159	17·6	134	13·6

Table 7.—Apportioning the Deaths during 1897 to the various age periods.

	Under 1 yr.	1 to 5	5 to 15	15 to 25	25 to 65	65 upwards	Total.
Central Ward	41	23	8	10	39	37	158
West Ward	41	15	6	10	42	23	137
North Ward	48	34	7	6	39	20	154
South Ward...	36	18	5	6	31	23	119
Borough of Crewe, 1897 ...	189	95	19	19	182	123	627
,, ,, 1896 ...	166	90	26	32	151	103	568
,, ,, 1895 ...	198	90	31	30	169	90	608
,, ,, 1894 ...	174	72	22	24	154	74	520
,, ,, 1893 ...	211	139	38	19	181	106	694

Table 8.—Rates of Mortality of Children under one year of age, from principal infantile diseases, per 1,000 births.

	1893		1894		1895		1896		1897	
	Total deaths	Rate per 1,000 births.	Total deaths	Rate per 1,000 births.	Total deaths	Rate per 1.000 births.	Total deaths	Rate per 1,000 births.	Total deaths	Rate per 1,000 births.
From all causes ...	211	...	174	...	198	...	166	...	186	...
ditto ...	...	171	...	143	...	160	...	138	...	146
Diarrhœa ...	65	...	6	...	42	...	19	...	45	...
ditto ...	...	52	...	4	...	33	...	16	...	35
Lung diseases ...	45	...	46	...	41	...	63	...	46	...
ditto ...	...	36	...	37	...	33	...	52	...	35
Convulsions ...	17	...	16	...	19	...	11	...	15	...
ditto ...	...	13	...	13	...	15	...	9	...	11
Premature birth ...	17	...	23	...	21	...	18	...	20	...
ditto ...	...	13	...	18	...	17	...	15	...	15
Tabes Mesenterica..	13	...	15	...	10	...	4	...	8	...
ditto ...	...	10	...	12	...	8	...	3	...	6
Measles ...	10	...	...	...	4	...	2	...	1	...
ditto ...	...	8	...	...	...	3	...	2	...	0·8
Whooping Cough...	7	...	8	...	2	...	1	...	16	...
ditto ...	...	5	...	6	...	1	...	1	...	12
Tubercular disease	4	...	3	...	2	...	1	...	0	...
ditto ...	...	3	...	2	...	1	...	1	...	0
Debility ...	3	...	24	...	21	...	14	...	12	...
ditto ...	...	2	...	19	...	17	...	12	...	9

Seven Principal Zymotic Diseases.

Number of Deaths ... **110.**

These include the diseases set out in Table 9. I have added, however, 1 death from dysentery to the Diarrhœa group, and have classified Membranous Croup with Diphtheria.

The total number of deaths referable to this group of diseases is 110, equivalent to a rate per thousand of the population of 2·81.

An analysis of the deaths from this group of diseases shows that the constituents are as follows :—

	Rate per 1000
Diarrhœa and Dysentery	1·53
Whooping Cough	0·65
Diphtheria and Membranous Croup ...	0·28
Scarlet Fever	0·18
Typhoid and Continued Fevers	0·15
Measles	0·02
Total	2·81

Diarrhœa is thus seen to be responsible for more than half, and Whooping Cough for about one quarter of the zymotic mortality.

The Zymotic Death-rate is considerably above the average for the preceding ten years, and is also considerably above that of England and Wales, which was 2·15.

Table 9.—Number of cases of Zymotic Disease which have come to the knowledge of the Medical Officer of Health during 1897 :—

	Central Ward.	West Ward.	North Ward.	South Ward.	Borough of Crewe.
Measles	5	13	6	9	33
Scarlet Fever	20	43	35	102	200
Diphtheria	17	19	12	18	66
Whooping Cough	39	34	5	66	144
Diarrhœa	2	5	1	2	10
Typhoid Fever	11	4	8	9	32
Total	94	118	67	206	485

TABLE 10.—Number of Deaths from the seven principal Zymotic Diseases during 1897, in the Borough of Crewe.

	Under 5 years.	Over 5 years.	Total.
Measles	1	...	1
Scarlet Fever	4	3	7
Diphtheria and Membranous Croup.	...	11	11
Whooping Cough	16	10	26
Diarrhœa and Dysentery	56	5	61
Typhoid and Continued Fevers ...	...	4	4
Total	77	33	110

TABLE 11.—Number of Deaths from the seven principal Zymotic Diseases in the various Wards during 1897.

	Central	West	North	South
Measles	...	...	1	...
Scarlet Fever	1	3	1	2
Diphtheria and Membranous Croup.	3	3	2	3
Whooping Cough	2	5	10	9
Diarrhœa and Dysentery	11	22	24	5
Typhoid and Continued Fevers ...	1	...	2	1
Total	18	33	40	20
Death-rate per 1,000 per annum ...	1·7	3·4	4·0	1·9

TABLE NO. 12.

Fatality of Notifiable Zymotic Diseases.

Disease.	Cases Notified.	Deaths Reported in these cases.	Case Fatality per cent.
Erysipelas	115	9	7·8
Scarlet Fever	201	7	3·9
*Diphtheria & Membranous Croup	66	9	13·6
Typhoid and Continuous Fevers...	32	3	10·7
Puerperal Fever	7	3	42·8

* Two deaths occurred in 1897 of cases reported in December, 1896.

Small-pox.

No cases—no deaths.

No cases of Small-pox have come to my knowledge during the year.

The Hospital in Pym's Lane has been kept in constant readiness, and is now under the same administration as the Isolation Hospital.

It was necessary to use the Small-pox Hospital several times during the year before the opening of the Isolation Hospital, for cases of Scarlet Fever. Since this, the whole place has been disinfected, lime-washed, and thoroughly cleaned down.

Actual number of deaths occurring from small-pox in the Borough of Crewe during each year since 1874 :—

1874 ...	4 deaths.	1882 ...	0 deaths.
1875 ...	1 ,,	1883 ...	1 ,,
1876 to 1879	0 ,,	1884 ...	1 ,,
*1880 ...		1885 to 1897	0 ,,
1881 ...	0 ,,		

* No record.

Measles.

Number of Deaths ... 1.

(1 death of a non-resident excluded.)

During the early part of the year Measles was prevalent in the South Ward, but not to an alarming extent, and not of a severe type. Sporadic cases have occurred throughout the year, and towards the commencement of 1898, the disease shewed signs of again becoming epidemic. In all fatal cases, and in all other cases where it may be requested, it is now our practice to disinfect the house, bedding, clothing, etc., and when an unusual number of cases occur in any School the class-rooms, cloak-rooms adjoining, etc., are thoroughly disinfected. In such a disease however, where infection exists, for it may be four or five days before any distinctive symptons (such as rash) appear, it is doubtful whether preventive measures will ever be of much avail. The knowledge of this however need not and should not prevent us from doing all we can to fight against it.

Table 13.—Death-rate per 1,000 per annum from Measles, locating the fatal cases in 1897.

	Borough of Crewe.	Central Ward.	West Ward.	North Ward.	South Ward.
1897	0·3	...	...	0·3	...
1896	0·2	·2	...	·4	·2
1895	0·2	...	...	...	...
1894	...	...	...	...	...
1893	1·0	...	...	...	...
1892	·2	...	...	... William St.	...

Table 14.—Actual number of deaths from Measles occurring in the Borough of Crewe during each year since 1874 :—

1874 ...	21 deaths	1882 ...	1 deaths	1890 ...	14 deaths
1875 ...	11 „	1883 ...	18 „	1891 ...	1 „
1876 ...	2 „	1884 ...	1 „	1892 ...	5 „
1877 ...	0 „	1885 ...	31 „	1893 ...	34 „
†1878 ...	30 „	1886 ...	0 „	1894 ...	0 „
1879 ...	1 „	1887 ...	32 „	1895 ...	7 „
*1880 ...		1888 ...	7 „	1896 ...	9 „
1881 ...	9 „	1889 ...	8 „	‡1897 ..	1 „

* No record. † The second half of the year only.

‡ One also occurred in a non-resident.

Scarlet Fever.

Cases notified	201
Number of Deaths	7
Case Mortality per cent.	3.9

Scarlet Fever has once more been prevalent, no fewer than 201 cases having been notified during the year.

The South Ward suffered most severely, having 97 cases, as compared with 45 in the West, 36 in the North, and 23 in the Central.

Second and third cases occurred in numerous families before the opening of the Hospital, owing to insufficient isolation. In spite of careful disinfection, secondary cases occurred in some—but only a very few—instances, when the patient had been removed to Hospital. This I could only account for by assuming that some article had escaped disinfection: *e.g.*, books, clothes stored away in a drawer in the room, &c., or some special article not given up to the Disinfecting Inspector.

The Medical Men attend such of their cases at the Isolation Hospital as they may wish to, and when in their opinion the patient is fit for discharge, the nurse on duty is acquainted, or better, the word "Discharged" is written across the temperature chart. The attention of the Medical Superintendent is then called to this case on the next "Examining Day," and if in his opinion it may be discharged with safety, a certificate is given to that effect.

The rule observed is, that no child is discharged until all desquamation has ceased, and all otorrhœa, pharyngeal or nasal discharge, albuminuria, &c., has disappeared. Desquamation is particularly sought for in the scalp, where it is extremely likely to escape detection.

As a further safeguard to your Committee, the following notice is sent out in respect of each case admitted:—

BOROUGH OF CREWE.

NOTICE TO SCARLET FEVER PATIENT OR PATIENT'S GUARDIAN.

Dated this day of 189

Dear Sir or Madam,

You are hereby notified that the removal to and treatment in the Borough Isolation Hospital of suffering from Scarlet Fever or Scarlatina, is undertaken only upon the distinct understanding that from the very nature of the disease the Corporation is totally unable to guarantee that *the said will be absolutely free from infection at the time of discharge, and can in no way hold themselves responsible for the occurrence of any further case of the same disease. The utmost care will be taken during the stay of the above patient at the Hospital, and on his discharge, to insure against such an accident; and on the back of this notice you will find certain precautions set out which you are earnestly requested to observe when the patient returns home.*

Signed,

Medical Superintendent.

Precautions to be observed by Scarlet Fever Patients or Patients' Guardians on Patient returning home from Hospital.

No one can say with certainty how long Scarlet Fever may linger in the system, and therefore the following precautions should be most carefully carried out:—

1.—Patients recently discharged from the Isolation Hospital should not be allowed to come into intimate contact with others for a week or ten days.

2.—No person discharged from the Isolation Hospital should be allowed to sleep in the same bed as a healthy person for at least a fortnight after discharge.

3.—A short holiday in the country, with plenty of fresh air, and apart from children if possible, is desirable after Scarlet Fever.

4.—All persons recently recovered from Scarlet Fever should be warmly clothed and protected from cold, especially about the chest and loins.

5.—It is *most important* that any recently discharged Scarlet Fever Patient who complains of sore throat, sore nose, or sore ears, or a "running from the ears," or who has a breaking-out or peeling of the skin, should be at once strictly isolated, and placed under the care of a medical man. The medical man should be informed of the nature of the recent illness.

Four cases were removed to the Small-pox Hospital in April from the Cottage Hospital, where a small outbreak of inexplicable origin occurred.

The Cottage Hospital was closed for a time, and most thoroughly disinfected.

Later in the year, three other cases were removed to the Small-pox Hospital from business premises in the town.

On October 10th the Isolation Hospital was formally opened, and on the 18th, 2 cases were admitted. During the remainder of the year 22 other children were admitted to the Scarlet Fever Wards, or a total of 24 in about 2½ months.

Since the opening of the Hospital, 32 fresh cases of Scarlet Fever were notified, and 24 of these, or 75 per cent., were removed to Hospital.

Considering that such an institution was quite a novelty to the public of Crewe, and considering the popular prejudice which was stated to exist against its establishment, such a result is extremely gratifying.

TABLE 15.—Death-rate per 1,000 per annum from Scarlet Fever, locating the fatal cases in 1897. Deaths in the Isolation Hospital are relegated to the Wards in which the person resided.

	Borough of Crewe.	Central Ward.	West Ward.	North Ward.	South Ward.
1897 ...	0·19	0·05	0·05	0·03	0·05
1896 ...	·4	·3	·3	·4	·7
1895 ...	·5				
1894 ...	·2				
1893 ...	·5				
1892 ...	·1				
		Market Square Wistaston Rd.	Hulme St. (2)	Hungerford Road.	Mill St. Railway St.

TABLE 16.—Actual number of deaths from Scarlet Fever occurring in the Borough of Crewe during each year since 1874 :—

1874 ...	9 deaths	1882 ...	7 deaths	1890 ...	0 deaths
1875 ...	43 ,,	1883 ...	7 ,,	1891 ...	2 ,,
1876 ...	4 ,,	1884 ...	0 ,,	1892 ...	3 ,,
1877 ...	22 ,,	1885 ...	13 ,,	1893 ...	19 ,,
1878 ...	many ,,	1886 ...	9 ,,	1894 ...	8 ,,
1879 ...	77 ,,	1887 ...	7 ,,	1895 ...	22 ,,
*1880 ...	,,	1888 ...	8 ,,	1896 ...	18 ,,
1881 ...	28 ,,	1889 ...	16 ,,	1897 ...	7 ,,

* No record.

Diphtheria and Membranous Croup.

Cases Notified	66
Number of deaths	11
Case Mortality per cent. ...	13·6

(2 deaths occurred in 1897 in cases notified Dec., 1896).

Of the 66 cases notified 61 were Diphtheria and 5 Membranous Croup. The latter disease is usually regarded as synonymous with diphtheria. It is so interpreted by the Joint Committee of the Royal College of Physicians in their third and latest edition of the Nomenclature of Diseases.

In six of the notified cases, material from the throat of the affected persons was submitted to bacteriological analysis by Prof. Delépine, of the Owens College, Manchester, and in two of these cases a positive result was obtained—*i.e.* diphtheria bacilli were found.

An examination of the sanitary conditions existing on the infected premises was made in all cases, and fully bore out what has been stated over and over again—viz. : that the escape of sewer gas from untrapped and unventilated drains, and the foul emanations which invariably arise from fixed receptacles, cesspool privies, and 'mixen' privies, are conditions which *strongly predispose* to attacks of this fell disease, and which contribute very largely to fatal results. In more than three-quarters of the households affected there were fixed receptacles, 'mixens,' or privy-pails.

The statistical researches of Dr. Arthur Newsholme have recently demonstrated that diphtheria, instead of being epidemic in urban communities in times of increased rainfall according to generally received ideas, tends rather to epidemic form in seasons of diminished rainfall. Sporadic or scattered cases of course occur at all times, but "Diphtheria epidemics are on the largest scale when three or more years of deficient rainfall immediately follow each other. Conversely diphtheria is nearly always at a very low ebb during years of excessive rainfall."

I have gone carefully through all the available statistics for this town with a view of ascertaining whether our experience bore out the above statement; but in the first place, I have only a record of the rainfall since 1893; and in the second place, diphtheria has never, so far back at least as correct records exist—viz. : to 1874, assumed epidemic form.

TABLE 18.—Death-rate per 1,000 per annum from Diphtheria and Membranous Croup, locating the fatal cases in 1897.

	Borough of Crewe.	Central Ward.	West Ward.	North Ward.	South Ward.
1897 ...	0·29	0·11	0·08	0·02	0·08
1896 ...	·2	·2	·2	...	·5
1895 ...	·05				
1894 ...	·05				
1893 ...	·5				
1892 ...	·3				
		Ludford St. Market Ter. Victoria St. Prince Albert Street.	Hulme St. Cemetery Rd. Oxford St.	Henry St.	Mill St. Edleston Rd. Nantwich Rd.

TABLE 19.—Actual number of Deaths from Diphtheria occurring in the Borough of Crewe during each year since 1874 :—

1874 ...	0 deaths	1882 ...	4 deaths	1890 ...	4 deaths
1875 ...	7 ,,	1883 ...	6 ,,	1891 ...	3 ,,
1876 ...	7 ,,	1884 ...	4 ,,	1892 ...	9 ,,
1877 ...	2 ,,	1885 ...	4 ,,	1893 ...	19 ,,
*1878 ...		1886 ...	5 ,,	1894 ...	2 ,,
1879 ...	2 ,,	1887 ...	16 ,,	1895 ...	2 ,,
*1880 ...		1888 ..	14 ,,	1896 ...	10 ,,
1881 ...	1 ,,	1889 ...	8 ,,	1897 ...	11 ,,

* No record.

Whooping Cough.

Number of deaths	26
Death-rate per 1,000 of population ...	0·65

This disease was especially prevalent during Spring and Summer, and more in the South and Central Wards than elsewhere. Preventive measures, such as can be applied in the face of popular ignorance or carelessness, are even of less avail in dealing with this disease than in measles. The public, however, on account of the lingering nature of the disease, and the usually perceptible deterioration in health it produces in children, are *less careless* than they are with measles, which is short and sharp, and does not upset a household for such a length of time. I am convinced that this is one of the principal reasons why whooping cough does not spread to such an extent as its companion Measles.

TABLE 20.—Death-rate per 1,000 per annum from Whooping Cough, locating the fatal cases in 1897.

	Borough of Crewe.	Central Ward.	West Ward.	North Ward.	South Ward.
1897 ...	0·67	0·19	0·53	1·02	0·87
1896 ...	·2	·3	·1	·3	...
1895 ...	·1	·1	·4	...	·1
1894 ...	·5				
1893 ...	·4				
1892 ...	·8				
		Oak St. Sandon St. Sandbach St. (2) Railway St.	Hulme St. Naylor St. (2) Underwood Lane Rose Terrace	New St. (2) Davenport St. Bradfield Rd. Thomas St. Remer St. Vere St. Martin St.	Myrtle St. (2) Lockitt St. Walthall St. (3) Railway St. Pedley St.

TABLE 21.—Actual number of deaths from Whooping Cough occurring in the Borough of Crewe during each year since 1874 :

1874... 1 deaths
1875... 9 ,,
1876... 2 ,,
1877... 9 ,,
*1878...
1879... 9 ,,
*1880...
1881... 4 ,,

1882... 9 deaths
1883... 4 ,,
1884...14 ,,
1885...11 ,,
1886... 8 ,,
1887... 4 ,,
1888... 4 ,,
1889...17 ,,

1890... 0 deaths
1891...13 ,,
1892...23 ,,
1893...14 ,,
1894...19 ,,
1895... 7 ,,
1896... 8 ,,
1897...26 ,,

* No record.

Diarrhœa.

Number of Deaths ... 60 (Dysentery, 1 death)
Mortality per 1,000 of population ... ... 1·53

As very frequently happens, the deaths from this disease have been numerous, and especially so in the very young. Indeed, exactly three-quarters of the total deaths occurred in infants under one year of age; and 55 out of 60 deaths were in children under five years of age.

Adults however suffered more severely than infants in regard to the total number of attacks, as the returns received from the Friendly Societies shewed.

Anticipating the usual summer occurrence of the disease, I had made arrangements with the Park Curator to have the readings of the 1-foot and 4-foot earth-thermometers sent to me weekly, and to have immediate notice sent when the latter instrument recorded a temperature of 56° F. "The 4-foot earth-thermometer crept up about one degree a week until Monday, July 5th, when it reached 56° F., and on that day information of the first case of Summer Diarrhœa reached me, the first death taking place on July 17th."

The deaths occurred principally in the month of August, though it was not until the end of September that the disease shewed signs of disappearing, the disappearance coinciding with the decline of temperature as recorded 4 feet below the surface.

The following shews the deaths for each week during the time of principal prevalence :—

Week ending July 31st ...	1	Week ending Sept. 4th ...	6
,, Aug. 7th ...	7	,, ,, 11th ...	4
,, ,, 14th ...	17	,, ,, 18th ...	2
,, ,, 21st ...	4	,, ,, 25th ...	4
,, ,, 28th ...	8	Part week ,, 30th ...	1

When the temperature recorded by the 4-ft. earth thermometer reached 54° F., about 2,500 handbills were immediately circulated, giving instructions as to the precautions to be observed in order to avoid the occurrence of the disease.

All the fatal cases, and a number of the non-fatal ones, were made the subject of inquiry, and a special report was presented to your Committee on the 20th September. In consequence of my inquiries having elicited the fact that a considerable amount of ignorance prevailed as to the management, and particularly the feeding, of infants, your Committee authorised me to draw up and circulate printed instructions on these matters.

I am assured from a number of quarters that these are very greatly appreciated, and I am confident that as they become more widely diffused a distinct measure of good will result.

In a large number of cases the privies, ashpits, pails, &c., were emptied and disinfected by means of the Equifex sprayer, using an acid solution of 1 in 1,000 perchloride of mercury.

Unfortunately, with the staff at my disposal, I was not able to extend these measures to every case, but a special effort will be made to do so this year.

The cause of the disease is in the soil, and therefore it is the soil which should be disinfected. It will be my endeavour to do this by saturating the whole of the yard area with a strong solution of chloride of lime, this having a disintegrating action on masses of organic matter which might contain the bacteria of the disease, and being cheap as well as efficient. Whether this will be practicable or not it is not possible yet to say, but it certainly appears the correct thing to do, combined with the measures detailed above, to prevent an *extension* of the disease.

To prevent the *occurrence* of the disease several other important matters will require remedying :—

1.—The abolition of cesspool privies, 'mixen' privies, fixed receptacles, pail-privies, uncovered and ill-constructed ashpits, etc.

2.—The paving and keeping clean of all back yards and back passages.

3.—The careful supervision of the laying of drains in close proximity to houses.

4.—The education of those of the public whose own sense of cleanliness is not sufficiently strong to keep them from throwing decaying organic matter, such as tea leaves, potato-parings, and filth of a worse description, on to the surface of the yard, thereby polluting the soil.

A consideration of the sanitary surroundings of the fatal cases brought out the fact, that in all but a few of them, the sub-soil in the immediate neighbourhood was seriously polluted by one or more of the conditions to which allusion has been made.

The day will come, and soon come, when Summer Diarrhœa will be looked upon as a disease as much preventible as are Scarlet Fever, Small-pox, and the like.

TABLE 22.—Death-rate per 1,000 per annum from Diarrhœa, locating the fatal cases in 1897; 1 case of Dysentery is included.

	Borough of Crewe.	Central Ward.	West Ward.	North Ward.	South Ward.
1897 ...	1·53	1·05	2·26	2·45	0·48
1896 ...	·5	·6	·4	·4	·5
1895 ...	1·3	1·0	1·3	1·8	·9
1894 ...	·3				
1893 ...	2·5				
1892 ...	·8				

TABLE 22A.—Localities in which fatal cases of Diarrhœa occurred during 1897:—

North Ward.	South Ward.	West Ward.	Central Ward.
Middlewich St.	Lord St.	Bright St.	Meredith St. (2)
Audley St. (3)	Ruskin Rd.	West St.	Beech St.
Mirion Court.	Lockitt St.	Dewes St.	Oakley St.
William St.	Brooklyn St.	Alexandra St. (3)	Market St.
Cemetery Rd.	Walthall St.	Peel St. (2)	Oak St. (2)
New St. (3)	Station St.	Dudson St.	Chetwode St.
Surrey St.		Ramsbottom St. (3)	Frank St.
Alfred St.			High St.
King St.		Rose Ter. (2)	Moss St.
Hungerford Av.		Jackson St.	Victoria St.
Earle St.		Broom St.	Fleet St.
Ridgway St.		Steel St.	Newdigate St.
Wrexham Ter.		Glover St.	
Vere St.		Minshull New Rd.	
Meredith St. E.		Underwood Lane.	
Queen St.			
Sheppard St.			
21	6	20	14

Table 23.—Actual number of Deaths occurring from Diarrhœa in the Borough of Crewe during each year since 1874 :—

1874 ...	21 deaths	1882 ...	16 deaths	1890 ...	15 deaths
1875 ...	19 „	1883 ...	10 „	1891 ...	11 „
1876 ...	21 „	1884 ...	32 „	1892 ...	24 „
1877 ...	5 „	1885 ...	6 „	1893 ...	93 „
1878 ...	41 „	1886 ...	39 „	1894 ...	13 „
1879 ...	2 „	1887 ...	14 „	1895 ...	49 „
*1880 ...		1888 ...	7 „	1896 ...	22 „
1881 ...	0 „	1889 ...	14 „	†1897 ...	61 „

* No record. † 1 case of Dysentery is included.

Typhoid Fever.

Cases notified	28
Number of Deaths ...	3
Case mortality per cent.	10·7

Typhoid Fever is not usually prevalent to a large extent in this town fortunately. In each of two houses four cases occurred, and in one of these houses the cause of the disease, it appeared to me, was a direct communication between the bath waste-pipe and the main sewer. There was also a defect in the water-closet, but this was outside the house, and had not ever been observed to cause any nuisance ; the bath waste-pipe however had been puttied up, on account of the offensive smells which came up it.

In two other cases the sufferers acknowledged having drunk water which, to their own knowledge, was polluted.

Four cases were admitted to the Isolation Hospital for treatment during the year ; and four other cases, though included in the notifications for last year, could not be removed until the beginning of this year.

Special covered pails are sent out to cases of Typhoid Fever, and are removed, emptied, and disinfected every two days. In other cases where the excreta are emptied down the water-closet, a risk is run, in my opinion, of inefficient disinfection, unless the people are warned against it. Disinfectant is added to the excreta, and they are immediately emptied into the W.C., and flushed down into the sewer, where, meeting with a large volume of water, the disinfectant becomes of no effect. This danger is now invariably pointed out to those attending on a case of Typhoid Fever, and they are told to add the disinfectant, and afterwards cover up the receptacle containing the excreta, and keep it outside for about an hour before emptying it down the W.C.

In addition to the above cases of Typhoid Fever, four cases of Continued Fever were notified, and one of these—in the North Ward—proved fatal.

TABLE 24.—Death-rate per 1,000 per annum from Typhoid Fever and Continued Fever, locating the fatal cases in 1897. Deaths occurring in the Isolation Hospital are relegated to the Ward in which the person resided.

	Borough of Crewe.	Central Ward.	West Ward.	North Ward.	South Ward.
1897 ...	0·10	0·3	...	0·3	0·3
1896 ...	·2	·2	·4	·1	·1
1895 ...	·1	·1	·1	·1	·1
1894 ...	·1				
1893 ...	·2				
1892 ...	·1				
		Gladstone St.		Martin St. Alfred St.	Maxwell St.

TABLE 25.—Actual number of Deaths from Typhoid Fever occurring in the Borough of Crewe during each year since 1874 :—

1874 ...	4 deaths	1882 ...	10 deaths	1890 ...	11 deaths
1875 ...	15 ,,	1883 ...	4 ,,	1891 ...	4 ,,
1876 ...	8 ,,	1884 ...	13 ,,	1892 ...	3 ,,
1877 ...	12 ,,	1885 ...	4 ,,	1893 ...	9 ,,
*1878 ...		1886 ...	7 ,,	1894 ...	5 ,,
1879 ...	6 ,,	1887 ...	11 ,,	1895 ...	6 ,,
*1880 ...		1888 ...	6 ,,	1896 ...	9 ,,
1881 ...	9 ,,	1889 ...	0 ,,	1897 ...	4 ,,

* No record.

Phthisis.

Number of Deaths	...	29
Mortality per 1,000 of population	...	0·73

The number of deaths at a comparatively early age from Phthisis or consumption of the lungs appears to be an increasing one. The 29 deaths recorded as due to this disease occurred at the following ages :—

Under 20 years	1
Above 20 and under 30 years	9
,, 30 ,, 40 ,, ...	8
,, 40 ,, 50 ,, ...	7
,, 50 ,, 60 ,, ...	3
,, 60 years	1

Every endeavour is made to convince the public, that it is an infectious and a preventible disease ; disinfection of houses, bedding, etc., is carried out in all fatal cases, and in any other cases when it may be requested. Handbills are distributed, setting out precautions which should be observed, and every effort is made to improve the sanitary surroundings of the sick.

But these measures are not likely to lessen the actual prevalence of the disease.

Though Phthisis in England and Wales has been steadily and very perceptibly decreasing for the past 58 years, whilst other tubercular diseases have decreased only very slightly, it is given on the highest authority that this decrease has not been caused by notification of the disease, for which some plead, nor by disinfection or isolation.

It has resulted, rather, from " better drainage of the land and of towns, and improvements in the dwellings calculated to permit the free passage of air and sunlight around them and through them."

It is essential that local authorities should make sure that all dwellings are sufficiently protected against dampness and impurity of soil by concrete foundations, damp-proof courses, ventilation under the floors, etc.

I quote from Dr. Arthur Ransome, whose excellent and painstaking work on the subject of Phthisis has laid a foundation from which untold and immeasurable benefits will yet grow.

Other Forms of Tuberculosis.

Amongst these are included Tubercular Peritonitis, Tubercular Meningitis, Acute General Tuberculosis, and Tubercular Disease of the Larynx, Kidney, etc., which have been the cause of 11 deaths during the year. The consumption of tubercular food in some form has most probably been the cause of most of these deaths. It cannot be too strongly urged upon those having the care of young children, that by simply boiling all milk intended for their use all risk of infection can be abolished. Probably the very simplicity of this procedure proves a bar to its adoption, but it is most certainly one of those things which, in my opinion, should *never* be omitted, and least of all when the milk is intended for the use of children or persons in a delicate state of health.

TABLE 26.—Death-rate per 1,000 per annum from Phthisis during 1897 :—

	Borough of Crewe.	Central Ward.	West Ward.	North Ward.	South Ward.
1897	0·73	0·6	0·4	1·0	0·6
1896	·8	1·0	1·2	·6	·6
1895	1·1	1·0	1·4	1·5	·6
1894	1·0	...	...	...	...
1893	·9	...	...	...	...
1892	·8	...	...	...	...

TABLE 27.—Actual number of Deaths from Phthisis occurring in the Borough of Crewe during each year since 1874 :—

1874 ...	31 deaths	1882 ...	28 deaths	1890 ...	36 deaths
1875 ...	30 ,,	1883 ...	45 ,,	1891 ...	23 ,,
1876 ...	27 ,,	1884 ...	25 ,,	1892 ...	24 ,,
1877 ...	19 ,,	1885 ...	33 ,,	1893 ...	31 ,,
*1878 ...		1886 ...	34 ,,	1894 ...	35 ,,
1879 ...	28 ,,	1887 ...	39 ,,	1895 ...	42 ,,
*1880 ...		1888 ...	22 ,,	1896 ...	33 ,,
1881 ...	26 ,,	1889 ...	38 ,,	1897 ..	29 ,,

* No record.

Influenza.

Number of Deaths	4
Mortality per 1000 of population ...	0·10

Influenza has never reached epidemic form during the year, though on one or two occasions a fair number of cases occurred. The disease, which is one full of vagaries, appeared generally to be of the gastro-intestinal form—affecting the digestive system principally. As usual, adults were almost exclusively affected, though a few cases were reported from the Schools.

Table 28.—Death-rate per 1,000 per annum from Influenza, locating the fatal cases in 1897 :—

	Borough of Crewe.	Central Ward.	West Ward.	North Ward.	South Ward.
1897 ...	0·10	0·09	0·1	0·1	0·09
1896 ...	·07	·01		·01	
1895 ...	·1				
1894 ...	.15				
1893 ...	·2				
1892 ...	·3				
		Duke Street.	Peel Street.	Cemetery Rd	Heidman St.

Pneumonia.

Number of Deaths	61
Mortality per 1,000 of population ...	1·53

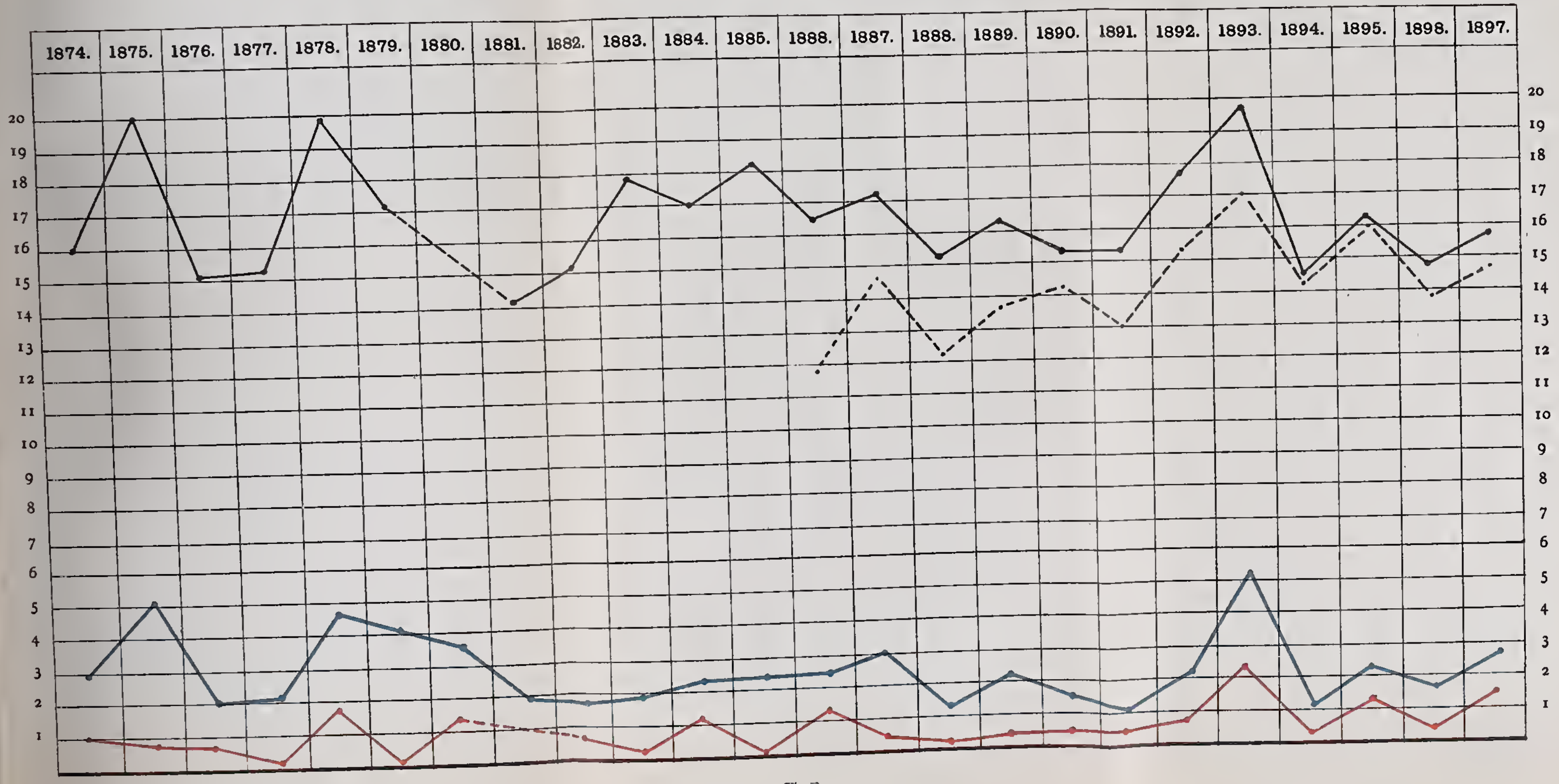
Of the 61 deaths registered as due to this disease, 14 were in children under 1 year of age, and 14 in children over 1 but under 5 years of age.

There appear to be two distinct types of this disease, one infectious, and one non-infectious, but the majority of cases seem to be of the former type.

Death-rate per 1,000 per annum from Pneumonia :—

1897 ...	**1·5**	1894 ...	1·2
1896 ...	1·8	1893 ...	2·5
1895 ...	1·3	1892 ...	1·2

Chart SHEWING DEATH RATE FROM ALL DISEASES (UPPER BLACK LINE).
SEVEN PRINCIPAL ZYMOTIC DISEASES (BLUE LINE).
DIARRHŒAL DISEASES (RED LINE).
INFANT MORTALITY, PER CENT. OF TOTAL BIRTHS (DOTTED BLACK LINE).



Deaths in the Cottage Hospital.

Twelve deaths have occurred in this Institution of persons resident in the Borough—three from injuries, one from phthisis, one from tuberculosis, and others from diseases of the nervous system.

Deaths in the Accident Hospital.

Four deaths occurred in the L. & N. W. Rwy. Co.'s Hospital—three from injuries following upon accidents, and one from suicide, the man having thrown himself in front of a passing train.

Deaths in the Isolation Hospital.

One death occurred in the Small-pox Hospital, Pym's Lane, of a child suffering from malignant Scarlet Fever. One death from the same disease occurred in the Isolation Hospital, Middlewich Street, and in the same institution a death took place from Diphtheria supervening upon Typhoid Fever.

Inquests.

There were 41 Inquests held during 1897 on residents of the Borough, or in other words an inquest was held on the bodies of 65 out of every 1,000 residents who died within the Borough.

The causes of death as recorded are given in the following Table.

In all there were 45 uncertified deaths of residents, and on all but 4 of these an official inquiry was instituted to ascertain and place upon record the cause of death—an extremely gratifying result.

TABLE 29.

Cases of Death as ascertained at Coroners' Inquests.

Fracture of Thigh (accident in Works)	1
Heart Disease	1
Convulsions	5
Alcoholism	2
Chronic Bronchitis	2
Heart Disease	5
Internal injuries (accident)	1
Injury to arm (accident)	1
Hæmorrhage (Natural causes)	1
Overlain	3
Influenza—Syncope	1
Injury—Tetanus	1
Run over (internal injuries)	1
Syncope	6
Fall from Scaffold	1
Anæmia and Uterine Affection	1
Drowning	1
Suffocation (accident)	1
Pneumonia	1
Erysipelas following injury	2
Apoplexy	1
Suicide	1
Fracture of Spine (accident)	1
Total	41

Table 30.

Vital Statistics of Crewe Borough.

	Birth-rate	Death-rate per 1,000 per annum.							Per 1000 born under 1 year.
		All Causes.	Zymotic.	Respiratory.	Phthisis.	Diarrhœa	Children. Per cent. of total Deaths under 1 year.	Children. Per cent. of total Deaths under 5 years.	
1887...	34.0	17·3	3.2	2·8	1·4	·5	28·8	46·7	146
1888...	34·6	15·3	1·5	3.7	·8	·3	25·9	...	113
1889...	33.1	16.5	2.2	3·0	1·3	·5	29·6	45·3	137
1890...	32·4	15·4	1.8	3·1	1·2	.5	29·5	39·5	142
1891...	33·8	15·0	1·2	4.3	·8	·4	29·3	39·5	130
1892...	35·6	17·9	2·3	3·2	·8	·8	30·7	45·0	154
1893...	34·7	19·6	5.3	4.4	·9	2·5	30·4	50·7	171
1894...	33·7	14·4	1·3	2·9	1·0	·3	33·4	47·3	143
1895...	33·4	16·4	2·4	3.2	1·1	1·3	32·5	47·3	160
1896...	31·4	14·8	1·9	4·2	0·8	0·5	29·2	45·0	138
Average of above 10 years.	33·6	16·2	2·3	3·4	1·01	0·76	29·9	40·6	143
1897	**32·17**	**15.77**	**2·81**	**3·65**	**0·73**	**1·53**	**30·3**	**45·7**	**146**

TABLE 31.—Shewing death-rates from certain diseases and groups of diseases for the five years, 1892 to 1896, and for 1897 :—

Name of Disease.	1892	1893	1894	1895	1896	Average for 5 yrs. 1892 to '96	1897
Cancer	0·72	0·54	0·52	0·56	0·57	0·58	0·40
Diarrhœa	0·70	2·5	0·3	1·3	0·57	1·07	1·53
Respiratory Diseases	1·97	4·4	2·9	3·2	4·2	3·33	3·78
Measles	0·15	1·0	Nil.	0·2	0·2	0·31	0·02
Erysipelas	0·15	0·2	0·05	0·05	0·1	0·11	0·23
Diphtheria	0·3	0·5	0·05	0·05	0·2	0·22	0·28
Scarlet Fever	0·09	0·5	0·2	0·5	0·4	0·34	0·18
Typhoid Fever	0·09	0·2	0·1	0·1	0.2	0·14	0·15
Whooping Cough	0·70	0·4	0·5	0·1	0·2	0·38	0·65
Old Age	1·03	0·80	0·72	0·97	0·86	0·87	0·54
Influenza	0·34	0·2	0·15	0·1	0·07	0·17	0·10
Premature Birth	0·48	0·43	0·63	0·56	0·4	0·50	0·92
Nervous Diseases	1·82	1·82	1·41	1·54	1·2	1·56	2·01
Digestive Diseases	0·90	0·52	0·70	0·75	0·62	0·70	0·48
Urinary Diseases	0·12	0·36	0·08	0·1	0·2	0·17	0·10
Phthisis	0·72	0·9	1·0	1·1	0·8	0·90	0·73
Heart Disease	0·92	0·79	1·19	1·1	1·36	1·07	1·80
Tubercular Diseases	...	0·39	0·38	0·32	0·23	For 4 yrs 0·33	0·27
Tabes	...	0·69	0·50	0·51	0·10	0·44	0·30
Ill-defined	...	0·33	1·05	1·18	0·73	0·82	0·60
Violence	...	0·47	0·30	0·54	0·47	0·44	0·27

TABLE 32.—Shewing Gains and Losses in the Death-rate per 1,000 persons living in the year 1897, as compared with the average Rates for the five years 1892 to 1896.

GAINS.

Name of Disease.	Average Rate during 5 years 1892 to 1896.	Rate during 1897.	Gains per 1000.	Probable number of lives saved.
All causes	16·66	15·77	0·89	35
Measles	0·31	0·02	0·29	11
Scarlet Fever ...	0·34	0·18	0·16	6
Influenza	0·17	0·10	0·07	3
Cancer	0·58	0·40	0·18	7
Phthisis	0·90	0·73	0·17	7
Tubercular Diseases ...	0·33	0·27	0·06	2
Tabes Mesenterica ...	0·44	0·30	0·14	5
Old age	0·87	0·54	0·33	13
Digestive Diseases ...	0·70	0·48	0·22	9
Urinary Diseases ...	0·17	0·10	0·07	3
Violence	0·44	0·27	0·17	7
Ill-defined Group ...	0·82	0·60	0·22	9
Other Diseases ...	...	...	1·78	70
Gross Gains			3·86	152

LOSSES.

Name of Disease.	Average Rate during 5 years 1896 to 1895.	Rate during 1897.	Losses per 1,000.	Probable number of lives lost.
Whooping Cough ...	0·38	0·65	0·27	11
Diphtheria	0·22	0·28	0·06	2
Diarrhœa	1·07	1·53	0·46	18
Typhoid Fever ...	0·14	0·15	0·01	..
Erysipelas	0·11	0·23	0·12	5
Premature Birth ...	0·50	0·92	0·42	16
Nervous Diseases ...	1·56	2·01	0·45	18
Heart Diseases ...	1·07	1·80	0·73	29
Respiratory Diseases ...	3·33	3·78	0·45	18
Gross Losses ...			2·97	117

NETT GAIN ... 0·89, or 35 lives.

N.B.—The death of one person in a population of 39,725 corresponds to a rate of 0·0254 per thousand. Hence a saving or a loss of a rate of 0.0254 means the saving or loss of 1 human life.

Similarly 0·125 ,, ,, ,, 5 ,, lives.
And 0·250 ,, ,, ,, 10 ,, ,,

Economic Value of a Reduced Death-rate.

Dr. Farr, the Statistician, demonstrated that every member of the community has a definite money value based on the power of earning wages. This value in the case of every male member of the population has been estimated by taking as the standard an ordinary agricultural labourer and capitalising the wages earned by him, the means of subsistence being deducted. The value of each male life varies of course at different age-periods, being but £5 at birth and gradually increasing to £246 at the age of 25, after which it diminishes gradually. The mean or average net value of each male life is found to be £150. Assuming—and the assumption cannot be very far from the truth—that one-half of the 35 lives gained in 1897, as compared with the previous years named, were those of males, we should have a net gain to the wealth of the community of £2700, or a sum almost exactly equivalent to the annual expenditure of the Health Department. This too is assuming that the female lives gained are wholly unproductive.

"M. Monod, the Director of the Assistance Publique of France, has shewn that the financial value of the lives saved in England in the *ten* years to 1889, estimated at Dr. Farr's co-efficient of £150 minimum capital value per life, completely recouped the total gross expenditure incurred in the previous *fifteen* years, quite irrespective of revenues derived from productive sanitary works, and of the value of the increased and improved health of the community."

But in Crewe, there have been altogether 183 deaths from what may fairly be classed as preventible diseases, *i.e.*, zymotic diseases, phthisis, and other forms of tuberculosis. Had all these preventible deaths been prevented, and had only one-half of the lives saved been those of males, a saving of £14,000 would have resulted to the community.

It was with the view of ascertaining, if possible, where the leakage of life took place in Crewe, that I have been at the trouble of constructing the preceding tables. The tables, however, shew the results only, and not their causes. Generally speaking, the conditions accompanying fatality in those diseases in which leakage of life has taken place, may be said to be impure air, impure water, impure food—one or all. Ensure purity in these, and a corresponding saving of life and health will result.

The following table shews the deaths in those with a definite occupation, as distinguished from those in the non-productive class.

TABLE 33.—Description of persons who have died during the year in the professional or commercial classes, in the artisan and labouring classes, and in the non-productive classes—annuitants, pensioners, "no occupation."

In Active Work.

	Males.	Females.
Baker	1	
Blacksmith	5	
Boilermaker	4	
Brass-dresser	1	
Builder and Contractor	1	
Charwoman		1
Clothing Cutter	1	
Coal Merchant	2	
Dairyman	2	
Domestic Servant		4
Dressmaker		2
Engine Driver	4	
Stationary do.	1	
Engine Fitter	12	
Farm Bailiff	1	
Foreman	1	
Forgeman	1	
Fustian Cutter		2
Hair-dresser	1	
Hammerman	2	
Insurance Agent	1	
Joiner	2	
Labourer	44	
Licensed Victualler	5	
Machinist	7	1
Office Clerk	2	
Painter	3	
Platelayer	1	
Plumber	2	
Plasterer	1	
Postman	1	
Railway Fireman	2	
Railway Brakesman	1	
Saddler	1	
Seamstress		2
Shoemaker	4	
Spring Smith	1	
Stonemason	2	
Striker	1	
Tailor	3	
Teacher of Music	1	
Traveller (Commercial)	1	
Tripe Dresser	1	
Turner (Iron)	1	
Tinsmith	2	
	130	12

Retired from Work.

	Males.	Females.
Of Independent means	2	1
Retired Clerk	1	
,, Farmer	2	
,, Grocer	1	
,, Poor Rate Collector	1	
,, Blacksmith	2	
	9	1

TABLE 34.—Shewing Birth and Death Rates in certain other towns during 1897 :—

Town.	Population.	Birth-rate per 1,000.	Death-rate per 1,000.	Zymotic Death-rate.	Phthisis Death-rate.	Respiratory Disease De'th rate	Infant Deaths per 1,000 Births.
Burton-on-Trent.	51,664	28·10	14·71	1·78	1·53	2·12	134
Congleton ...	11,079	27·9	16·6	1·3	1·3	2·5	153
Macclesfield ...	36,000	27·1	20·3	3·2	2·1	3·88	175
Northwich ...	18,100	39·1	19·55	3·09	0·93	2·8	182
Lancaster ...	35,346	25·03	13·91	2·85	0·83	0·97	151
Blackpool ...	43,800	26·25	15·29	2·36	0·79	2·03	171
Ashton-under-Lyne...	44,700	26·6	20·9	3·4	...	...	228
Dudley... ...	47,955	36·01	17·87	2·14	1·06	...	165
Wolverhampton .	87,287	35·1	21·8	4·6	1·18	3·7	219
Widnes (Lancs.).	32,000	32·0	17·8	0·6	0·5	4·9	197
Stockport ...	81,500	30·9	21·5	4·8	1·5	4·8	214
Eccles (Lancs.) ..	35,000	26·0	16·7	2·7	1·6	3·3	186
Southport ...	49,678	20·70	16·55	1·11	1·7	2·35	181
Winsford ...	10,655	33·6	16·7	4·2	0·9	2·3	184
Stoke-on-Trent...	27,561	29·3	15·9	2·2	0·9	2·6	185
Stalybridge ...	28,295	28·6	21·4	3·5	...	...	184
Lytham ...	5,735	18·3	13·25	0·6	0·8	2·61	190
Aston Manor ...	79,698	32·8	17·0	4·8	1·16	2·95	200
Wigan	60,423	37·16	20·99	3·11	1·30	5·37	175
Chesterfield ...	24,493	33·4	21·5	4·0	1·06	3·91	220
Stafford ...	21,665	26·88	13·53	0·59	1·33	2·52	140
Crewe... ...	**39,725**	**32·17**	**15·77**	**2·81**	**0·73**	**3·69**	**146**

Isolation Hospital.

This building, which has been for so long a serious want of the town has been completed during the year, and was formally opened by the Right Honourable the Earl of Crewe, on the 16th of October. Two days later the first two patients were admitted suffering from Scarlet Fever. For some months before this Hospital was opened for use, cases of Scarlet Fever occurring in business premises had been removed and treated at the Small-pox Hospital in Pym's Lane.

ORIGIN OF HOSPITAL.—In 1893 the then Medical Officer of Health, Dr. Herbert Jones, reported to the Town Council upon the necessity of means of isolating the infectious sick of the town. Several serious cases had occurred in which the disease had, through want of isolation, spread to other houses in the neighbourhood, with fatal result. At that time a Sub-Committee was appointed to consider the matter, and reported to the Council on February 27th, 1894, that it was desirable to erect an Isolation Hospital. After numerous meetings, the necessary preliminary details were settled, the present plot of land purchased, and competitive plans invited. Sixty-three plans were entered for competition, and that of Mr. George Bolshaw, of Southport and Crewe, was selected on Feb. 26th, 1895.

A Local Government Board Inquiry was held on May 21st, 1895, by Dr. R. Deane Sweeting, and sanction given to the borrowing of £8,000. Tenders were invited for the erection of the buildings, and on October 18th, 1895, that of Mr. John Matthews, of Nantwich, was accepted.

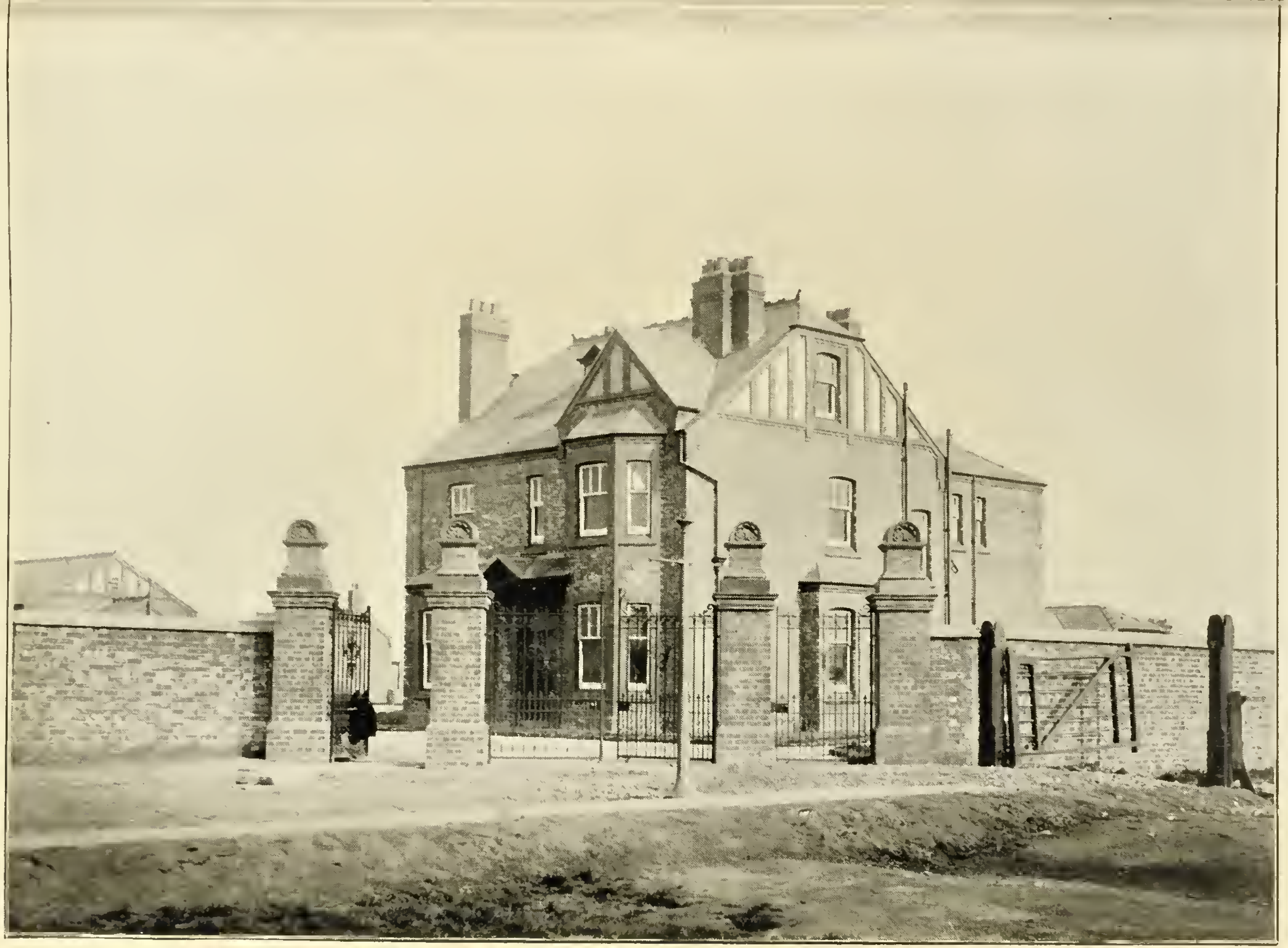
DESCRIPTION OF HOSPITAL. The site of the Hospital consists of 5 acres of land, situated to the North of Middlewich Street, in an elevated position, and with the open country around.

It is easily accessible from all parts of the town except the Coppenhall side, but this drawback, it is anticipated, will very shortly be remedied.

The building consists of five blocks, as follows:—

1.—The Administrative Block near the entrance gates, for the residence of the Matron, Nurses, and Servants.

2.—Pavilion nearest to Administrative Block for the isolation of Typhoid Fever cases. This consists of two Wards, to hold six and four beds respectively, with a Nurses' room between, and the necessary bathroom, lavatories, etc., attached.



BOROUGH ISOLATION HOSPITAL.—Opened October 16th, 1897.

3.—Small pavilion between the two large ones. This consists of two single bed Wards, with a Nurse's duty room between them. It is used principally for the isolation of diseases the nature of which is suspicious, but not at first clearly manifest, or for the isolation of intercurrent infectious diseases such as Scarlet Fever with Measles, etc.

4.—Scarlet Fever pavilion. This consists of a large and a small Ward to contain eight and six beds respectively, and opening off each Ward a small private Ward for the accommodation of private cases or serious cases in which special nursing is necessary. Between these is a Nurse's duty room, from which windows look into all the four Wards. Opening off the large Wards are lavatories, etc.

5.—The Laundry block consists of:—

(*a*) Laundry fitted up with all the most recent apparatus for washing, drying, ironing, etc.

(*b*) Discharging Rooms, through which patients pass on leaving the Hospital. The patient undresses in the first room, has a disinfectant bath in the second, and dresses again in clothes which have been disinfected in the third, passing then directly out of the grounds to his home.

(*c*) Disinfecting Chamber, in which a Washington Lyons steam disinfecting machine is fixed.

(*d*) Ambulance Shed and sheds for bedding, carts, etc.

(*e*) Mortuary.

(*f*) Stable.

(*g*) Boiler House, with vertical boiler for the supply of steam to the laundry, disinfecting machine, bathing-out room, etc.

THE INTERIOR OF THE WARDS.

Everything has been planned in the Hospital, firstly, with a view to the comfort and well-being of the patients, and secondly, with a view to the convenient management of the Hospital by the nurses and attendants. All has been designed with a view of preventing the spread of infection from one building to another, or the retention of any infection within the buildings themselves. Sunlight and fresh air are freely admitted on all sides; warmth is secured by the large Manchester coal-fire stoves; perfect cleanliness is ensured by the careful rounding of all corners and angles to which dust might cling, and by the almost glassy surface of the plaster on the walls, which are finished off with Keene's cement.

The furniture has beeen most carefully chosen to ensure the genuine comfort of the patients. Plants and flowers in abundance give an air of brightness to the wards; books, pictures, and toys of all descriptions are provided for the patients, and, indeed, no sick person could wish to be in better surroundings.

THE FURNISHING AND ORGANISATION of the Isolation Hospital proved a most severe tax on your Committee and on the Health Department.

Had I not had most loyal support from your Inspector in getting out specifications and tenders, preparing estimates and tabulating tenders for each individual item required throughout the whole of the Hospital, the task would have proved an impossible one. It was a task too in which I found it impossible to get any help from others who had gone through the same experience, and I therefore look now with what I think is justifiable pride on my handiwork. The Hospital has now (at the time of writing) been in use for six months, and no single article of importance has been found wanting, nor has any single article of a useless kind been purchased.

An Inquiry was held on January 8th into an application made to the Local Government Board by the Council for an additional loan of £2000 for Hospital purposes, £1000 being for extra cost incurred over the original estimate in connection with the erection of the Hospital buildings and boundary wall, and £500 for electric lighting plant. The Board sanctioned the loan of the £1000, but refused to sanction a loan for a destructor, and also deprecated the idea of electric lighting for the Hospital on the grounds that gas mains and pipes had already been laid, and that electric light fittings would depreciate during periods of non-usage of the Hospital.

An attempt was made in February to alter the decision of the Local Government Board in this matter, and their reply of March 17th, was to the effect that they would not refuse to sanction a loan for electric lighting if the Council desired to press it, but they pointed out that a larger boiler would be required and suggested that the question should be deferred until a general supply should have been obtained for the Borough.

At a special meeting of the General Purposes Committee held March 20th, it was decided to press the request for a loan of £500 for electric lighting purposes, but this resolution was quashed at the succeeding Council Meeting, and the whole matter was then dropped.

Looked at purely and simply from a health point of view, electric lighting is, in the opinion of every right-thinking person, unquestionably superior to gas. But in this particular case, where there is no electric lighting installation for general supply in the town, it is, to me, a matter of serious doubt whether the proposal would have had equal economic advantages. I say this, having looked fairly at both sides of the question, and having also in mind the fact that, with electric light it might be possible, in the same room, to accommodate a greater number of patients, since there would be less pollution of the atmosphere. But in the first place, it has not yet been demonstrated that we stand in need of accommodation for larger numbers than we now have; the time certainly may come in the future, but up to the present it has net come. And in the second place, it would not be found practicable, I am of opinion, to increase to any great extent the numbers of persons which the Hospital will accommodate. Even with electric light throughout the building I do not think it would be advisable to increase the number of beds by more than one quarter of those now provided. Lateral space between beds and floor space must not be too much encroached upon in a Fever Hospital, or inconvenience in nursing will result, and exhalations from the bodies of patients will not so readily diffuse and become harmless.

Seeing that the estimated extra annual cost of electric lighting over gas for the Hospital is but £13 13s. 4d. (see Minutes, 1897, p. 15), allowing a liberal sum for depreciation of fittings, and including interest and re-payment of loan of £500 at 2¾ per cent., repayable in 20 years, the question is one to which your Committee will do well to turn their attention when there is a general supply available in the town, as will probably be the case shortly. The increased health conditions will amply repay the expenditure of this slight extra amount.

Some little trouble was occasioned to your Committee by the consideration of the question of medical men attending their own patients at the Isolation Hospital.

On this question, I, in common with everyone who has experience of Fever Hospital management and who also has to safeguard the public health, hold decidedly strong opinions. What these opinions are your Committee now know, and I think you are not only in sympathy with them but are also convinced of their propriety. But between Scylla and Charybdis I think a wise middle course has eventually been decided upon, and though it does not properly belong to the year under review a mention of this final decision may not be altogether out of place.

1. Medical men will be allowed to attend such of their own cases as they may desire. Any cases which they do not desire to attend may be placed under the care of the Medical Superintendent, notice of their desire in this case to be given in writing at the commencement of the patient's illness; the Medical Superintendent not to attend any cases of pauper illness, and any patients placed under his care to be so placed from admission to discharge from the Hospital.

2. Medical men attending their own cases at the Hospital to be requested to give immediate notice in writing to the Medical Superintendent of the occurrence of any Infectious or Contagious Disease in their patient other than that for which the patient was admitted (such information to be regarded as private and confidential), the Medical Superintendent to draw up a list of those diseases, notification of which is desirable in the interests of the other patients, and to be empowered to take any such steps as he may deem necessary on receipt of this information.

This schedule of diseases includes all the diseases which are notifiable under the Infectious Diseases (Notification) Act, and in addition, the following :—

Influenza.
Phthisis.
Syphilis.
Measles or German Measles.
Scabies.
Pediculosis.
Whooping Cough.
Chickenpox.
Mumps.
Ringworm.
Contagious Eczema.
Contagious Ophthalmia.

Forms of notification are provided, which, when filled up, are given to the nurse on duty in the ward.

3. A medicine cupboard has been provided for the use of medical men attending the Hospital in emergencies, such medicine cupboard containing only drugs of the British Pharmacopœia. Medical men requiring medicines are requested to write a prescription on forms provided, bearing the name of patient, date, hour, and signature, and hand

this to the nurse on duty, who shall immediately give it to the Matron to be dispensed.

4. Some dissatisfaction resulting from the Medical Superintendent visiting and examining cases before admission, the regulation dealing with that has been modified in such a manner that these cases are now examined immediately after admission, and the Corporation accepts no responsibility for any case until it has been seen by their Official.

All these conditions are of course made subject to revisal from time to time by your Committee, but it is sincerely hoped that smooth working of the establishment will continue.

CHARGES TO PATIENTS.

Your Council have decided, and in my opinion, wisely decided, to make no charge for the use of the general Wards by the ratepayers of the town. The use of the ambulance outside ordinary working hours is alone charged for.

For those desiring private accommodation or a special Nurse, the following charges are made :—

PRIVATE WARDS :—Adults ...	£2 2s. 0d.	per week.
Children under 12	£1 1s. 0d.	,,

SPECIAL NURSE :—All the Fees and Expenses, and £1 per week for board and lodging.

For the use of the Ambulance, if required before 8 a.m. or after 6 p.m., 2/6 per journey.

It has also been decided to admit cases from districts within a radius of 8 miles from the Hospital as a centre, provided, in the opinion of the Medical Superintendent, there is available accommodation. The charges per week for such patients are :—

GENERAL WARDS :—Adults ...	£2 2s. 0d.
Children under 12	£1 1s. 0d.
PRIVATE WARDS :—Adults ...	£3 3s. 0d.
Children under 12	£2 2s. 0d.

For the use of the Ambulance, a sum of 5s. per journey will be charged, *plus* actual cost of horse-hire ; or, if Ambulance required outside ordinary working hours, 2/6 per journey extra.

Pauper patients resident in the Borough only will be taken in, and a charge will be made to the Guardians of £3 3s. 0d. per week for adults, and £2 2s. 0d. per week for children under 12, in cases where the Guardians or a duly authorized official makes a request for admission.

Your Committee may possibly at some future time have to modify your decision on the question of admitting all ratepayers free of charge to the Hospital. It is discretionary with you whether a charge shall be made or not, and in some towns the public have made such free use of Isolation Hospitals that it has been necessary to impose a small charge of about 1/-per day to cover the cost of maintenance. Whether the greatest good will result to the public as a whole by the adoption of such a policy is an open question, but the balance of experienced opinion at present tends to indicate that it is unwise to make any change even when the accommodation is being strained. In the appendix you will find a statement of the cost of the Hospital, which requires very careful consideration.

May I bring to your notice again a short sentence which appeared in the Programme of the Opening of the Isolation Hospital? it will bear much consideration.

A GERM OF THOUGHT.

It may seem paradoxical at first sight, but it is none the less true, that the utility of an Isolation Hospital is not to be measured by the number of cases treated there.

If one could measure its utility by the number of cases the occurrence of which the Hospital prevented, that would be the proper method, but in the nature of things it is impossible.

Examination of Houses.

A most useful and and most necessary Bye-law has been brought into force during the year, viz. :—New houses to be certified as fit for habitation before occupation.

During the year 234 of these certificates have been issued, the arrangement coming into force on January 31st. As was naturally to be expected, a number of houses in course of erection or practically completed, claimed exemption from the examination—notably a group in Brooklyn Street, so that the foregoing figure does not represent the total number of houses completed during the year.

In a town like this, which is growing so rapidly, the importance of this cannot be over estimated. Nor are the older built houses left without protection in this respect, for any house, on a request being made to the Health Department, will be examined by the Officials of that Department, and the intending occupier will be informed whether or not it is in good sanitary condition.

It is highly desirable that this latter arrangement should be brought more prominently before the public.

WATER SUPPLY.—Tin-lining of Pipes.

The Architect of the Isolation Hospital in his specifications, omitted to specify pipes according to the Water Regulations in force in the Borough, and ordinary lead water-pipes were in consequence put in. When his attention was called to the matter, the Architect gave an estimate of the cost of substituting tin-lined pipes for the water service already laid throughout the Hospital premises, amounting to £73 0s. 5d. The matter was considered at a meeting held January 14th, but was deferred in order that experiments might be made to ascertain the action, if any, of the Crewe water on the lead pipes. The then Medical Officer of Health, Dr. H. Jones, made experiments with lead piping as used by the Hospital Contractor, and with tin-lined water-piping obtained from the Corporation plumber, these pipes being both exposed to the action of Crewe tap water for 5 days. It was found that the water had not acted upon either of the pipes. Dr. Jones gave an opinion based upon these and other experiments, that no ill-effects would arise from lead pipes being used at the Isolation Hospital.

The Market, Lighting and Water Committee, at a meeting held February 16th, resolved that Dr. Percy Frankland be asked to make experiments as to the action of the Crewe water upon unlined lead water pipes. The L. & N. W. Railway Company were also asked if they would supply a copy of the results of the analysis of the Crewe water, but they were unfortunately unable to do so.

Dr. Frankland's report came to hand in due course and was considered by the Market, Lighting and Water Committee, on June 15th.

Dr. Frankland's report stated that the water contained the following in parts per 100,000 :—solid matte 18·30, total hardness 8·9, temporary hardness 4·5, permanent hardness 4·4. "It is free from ammonia and nitrites, it is alkaline to methyl orange and alkaline to phenol-phthalein on boiling. There is, therefore, nothing in the composition of this water which would lead to its being suspected of plumbo-solvent action." Two series of experiments were made by Dr. Frankland. In the first series, U-shaped leaden pipes, of half-inch internal diameter and open at each end, were filled, some with Crewe water and some with Birmingham water, which last is well known to be without action on lead.

The water, after standing for a number of hours, varying from 24 to 60, was examined for lead, and this was repeated a number of times.

Nine sets of experiments were made on these lines. These experiments shewed that the mean quantity of lead contained in suspension or solution in water so treated was ·0675 parts per 100,000, equivalent to $\frac{1}{21}$ grain per gallon. The largest amount of lead was dissolved during the first two days of experiment, after which it fell, and on the ninth day two pipes exposed to the action of the water for 60 hours dissolved only ·05 and ·04 per 100,000 of lead respectively. In the second series of experiments, new leaden pipes $3\frac{1}{4}$ ins. internal diameter and two feet in length, were closed at one end and filled with water, which was poured off and tested from day to day, Crewe water being compared as before with Birmingham water. The mean quantity of lead dissolved in ten experiments in which the water was in contact with lead for 24 hours was ·085 parts per 100,000, or about $\frac{1}{17}$ grain per gallon. The mean quantity of lead dissolved in 4 experiments where the water was in contact with the lead for 60 hours was ·080 parts per 100,000, or $\frac{1}{18}$ grain per gallon.

Dr. Frankland concluded from both sets of experiments "that the plumbo-solvent power of the Crewe water is practically nil, for the water even after 60 hours contact with the leaden pipe contained only a very minute quantity of the metal. The amount of lead found in the water tends to diminish as the age of the pipe increases."

From the results of these experiments and from the chemical composition of the water, Dr. Frankland concluded that the samples submitted to him were practically destitute of plumbo-solvent action, and that the tin lining of pipes for the supply of water was unnecessary.

I myself made a few experiments with ordinary lead piping and with a specially prepared lead which is extremely easily attacked by a plumbo-solvent water, and from these experiments, as well as from a chemical analysis of the Crewe tap water, I was able to assure this Committee that tin lining of lead pipes in the Borough was unnecessary. The Committee therefore recommended the Council to strike out the words "all lead pipes to be tinned inside" from Water Regulation No. 3, the object being to allow either tinned or untinned water service pipes to be used. This was done by the Council at a meeting held July 7th.

Disinfection.

In February, your then Medical Officer of Health had a good deal of difficulty in carrying out efficient disinfection in a house in which a case of Scarlet Fever had occurred.

A resolution was at that time passed that the Medical Officer of Health be instructed to insist upon all infected houses and articles being disinfected by the Corporation Officials.

This difficulty has cropped up time after time since then, but acting on this resolution and on statutory powers conferred by the Infectious Diseases Prevention Act, I have in such cases in the first place made the most careful inquiries as to what disinfection, if any, had already been carried out. If these inquiries and an inspection of the premises satisfied me that proper disinfection had been carried out, no further action was taken, but where, as was most generally the case, the utterly useless plan of sulphur fumigation with the use of a so-called disinfectant soap, and the exposure of a few saucerfuls of chloride of lime, etc., in the room had been carried out, I insisted upon my own staff doing the work. To this rule I make no exception, and it would be most unwise to attempt to make exceptions. In cases where bedding is infected I invariably insist on its passing through the steam disinfector.

The following articles have been disinfected in the Washington Lyons Disinfector during the year:

Bedding and Mattresses	230
Pillows and Bolsters	272
Parcels of Blankets	181
Counterpanes, etc.	90
Curtains and Bed Hangings	54
Carpets and Rugs	95
Parcels of Clothing	84
Cushions	42
Mats and Sundries	163

In addition to this there have been 244 houses disinfected, and 232 notices issued to re-paper, limewash, etc., after disinfection.

Several lots of bedding have been destroyed on the request of the owners, and in these cases of course no compensation was given.

An increasing distrust of the efficacy of sulphur fumigation is manifest on all hands, and sponging or washing the room surfaces with perchloride of mercury (such as is carried out here), or with chloride of lime solution (which it is my intention to try shortly) is becoming recognized as the most effectual and only reliable method.

Several times during the year, and more particularly in dealing with midwives who had been in attendance on cases of puerperal fever, I have had to put in force section 6 of the Infectious Disease (Prevention) Act, and demanding the delivery of articles of clothing, &c., to the Disinfecting Inspector.

Notification of Infectious Disease.

During the year the following notifications have been received :—

Scarlet Fever ...	201	Erysipelas ...	115
Diphtheria ...	61	Typhoid Fever ...	28
Membranous Croup	8	Continued Fever	4
Puerperal Fever ...	7	Relapsing Fever	1
	TOTAL ...	422.	

It is not too much to say that not only without this Act would much sanitary work be impossible, but also the benefits of the Isolation Hospital would be reduced almost to a nullity.

Inspections, &c.

During the eight months I have been with you I have made 1055 visits of inspection of various premises, including some of each of the undermentioned special buildings. Your Inspector has also been actively at work, for it is imperative that in buildings where articles of human food are prepared, such as Bakehouses, Milk Shops, Slaughterhouses, &c., the highest sanitary state should be maintained.

Table 35.—Premises which require periodical inspection.

	Borough of Crewe.	Central Ward.	West Ward.	North Ward.	South Ward.
Bakehouses	23	7	4	7	5
Cow-sheds	59	4	15	30	10
Dairies and Milk Shops ...	45	13	13	6	13
Lodging-houses	5	3	...	1	1
Slaughter-houses... ...	13	6	2	1	4
Factories	41	18	9	6	8
Workshops	61	32	11	8	18
Laundries	2	...	...	...	2
Total ...	249	83	54	59	53

The Slaughterhouses are mostly buildings utterly unsuited for the purpose. Many are badly paved, one has a manure heap communicating directly with it, and one has a cesspool inside it.

I cannot conscientiously say, therefore, that any one of the private slaughter-houses I have inspected in the Borough is in a perfectly satisfactory condition.

Your Committee, early in the year, refused an application for the licence of certain premises for use as a slaughter-house, the premises being found by the Medical Officer of Health to be unsuitable.

On two occasions I have been asked for advice by persons desirous of building private slaughter-houses, and I have, on both occasions, given my opinion that, having regard to the provisions of the Public Health Acts (Amendment) Act, and the stringent bye-laws relating to such buildings, the building of new premises for slaughtering purposes would not be a wise undertaking.

On both occasions, the intending builders, after having everything fairly put before them, decided not to prosecute their schemes.

It is impossible to keep that careful watch over the meat supply of the town, which could be easily secured in a public slaughter-house. It is my intention at an early date to ask your Committee to consider the question of providing public accommodation for this purpose. Indeed, you will be compelled to take some action in the matter, or else sanction the building of more private slaughter-houses, for the existing accommodation is utterly insufficient for the size of the town.

Bakehouses.

In the majority of the bakehouses the most scrupulous cleanliness is observed, the ovens being stoked from behind in five of them. In some however I have had to find fault with the condition of the floor or walls and the state of the yards adjoining, which were anything but satisfactory. In one instance I found a D-trap inside the bakehouse and 2 in the yard adjoining, whilst within 3 feet of the bakehouse door was a large deep uncovered ashpit. The owner very promptly remedied these defects however.

Conditions of cleanliness are not by any means always observed in the delivery of the bread, and I sincerely hope that before long the plan which has been so successfully adopted in many towns in Germany—of twisting each loaf up separately in a piece of thin tough paper, so that it need not come in contact with anyone's hands until it is placed upon the table—will be adopted in this country. Certainly it is the reverse of pleasant to see the treatment some bread receives in the streets and elsewhere.

Dairies, Cow-Sheds, and Milk Shops.

These have received due attention, but in most of the cow-sheds it is impossible owing to structural arrangements to ensure the observance of the conditions which should be maintained in such places. Those I have visited have been overcrowded to an inconceivable extent, and in the majority of cases absolutely without any attempt at ventilation or lighting.

The public are becoming increasingly alive to the importance of a pure milk supply, and milk-producers have now to turn their attention to many little details which were scoffed at only a few years ago in order to maintain their custom.

In some places, the cooling of the milk in hot weather by passing it through a cold water coil immediately after drawing is practised, and, it is stated, that the keeping properties of the milk are decidedly enhanced.

I had to prohibit the sale of milk from a milk shop in the middle of the year, owing to the existence of a case of Scarlet Fever on the premises.

Common Lodging Houses.

The whole of these have been inspected at night by myself or your Inspector, and though fairly well kept considering the structural disadvantages not one could be said to be satisfactory. There is, in the first place, insufficient accommodation for the needs of the town, which naturally leads to surreptitious overcrowding, and, in the second place, with one exception they were none of them built for the purpose they now fulfil, but are simply converted dwelling-houses.

For these defects there is but one remedy—the provision of a Model Lodging House; and if private enterprise does not come to the rescue, it will be worth the consideration of the Council whether they shall provide one themselves. Many municipalities have already done so, and find that they produce a profit for the relief of the rates.

Diseased Meat, &c.

During the year a number of seizures of meat and other articles of food have been made.

A few persons have brought meat to me on the Monday morning which was purchased on the Saturday night previous, and which was, they stated, bad when purchased. In none of these cases, however, have I been able to obtain evidence of a kind sufficient to justify me in undertaking a prosecution.

On the 20th September my attention was called to 23 pieces of beef exposed for sale on a stall occupied by John Briscoe Reade in the Market Hall, and these I seized as being unsound and unfit for human food. The Veterinary Inspector confirmed my opinion. I laid the necessary information for prosecution after consultation with the Town Clerk, and the case was heard on the 19th October, occupying the whole day. The Bench, in giving their decision, stated that they considered the case one of the most important that had occurred for some time.

They considered the weight of evidence from specialists and others decidedly in favour of the prosecution. The question they had to consider was not so much based on the scientific aspect of the case (whether the animal was suffering from tuberculosis or any other disease), but whether the meat exposed for sale was, or was not, irrespective of the cause, fit for human food. They came to the conclusion that it was not fit for food, but in view of the heavy expenses attending the case, they inflicted the lightest penalty they conscientiously could. The defendant was therefore fined £3 and £8 costs, or in all £11, to be paid in 21 days, or failing that, distraint, or failing that, imprisonment for two months with hard labour.

The consent of the Market, Lighting, and Water Committee was obtained to the posting of notices in prominent places in the Market Hall to inform purchasers of food of the provisions of the Public Health Acts (Amendment) Act, in reference to the seizure of meat, etc., after purchase.

A number of these have been posted and are renewed from time to time.

The disgusting practice of blowing veal, poultry, etc., is carried on to a large extent in the town, and I have, on many occasions, entered a very strong protest against it. In the absence of legislation one cannot at present do no more. The public should know that it is not only a filthy and disgusting practice, but also a dangerous one, for phthisical or consumptive persons may be employed to do the blowing, and the veal or poultry thereby become infected.

During the year the following articles of food have been removed and destroyed at the written request of the owners, such request being written on a form provided by the Department and being duly attested:

3 Carcases of Beef.
40 Rabbits.
322 Tins of Sardines.
1 Fowl.

These were not formal seizures under the provisions of the Public Health Act.

In one case only did I experience any obstruction in the discharge of my duty in this connection, and in this case it was necessary to call in a police officer to eject the person obstructing. After consultation with the Town Clerk, I decided not to prosecute, providing a public apology was inserted in the two local papers at the expense of the person obstructing, and a sum of 10s. was given to be spent in books, toys, etc., for the Isolation Hospital. These conditions were readily complied with.

Sale of Food and Drugs Acts.

I am informed by Chief Inspector Laird, the official of the Cheshire County Council, that 52 samples have been taken of various articles of food during the past year. All these articles were certified by the Public Analyst to be pure, but in two cases (see below) the Analyst stated that the samples were of poor quality and only just up to the required standard. Further samples corresponding to these two doubtful ones were subsequently obtained and found to be pure. No prosecutions have been undertaken during the year under notice.

The samples obtained were of the following nature :—

Arrowroot	2	Oatmeal	1
Butter	10	Pickles	1
Cheese	1	Rectified Spirit	1
Coffee...	3	Sugar (Castor)	1
Cornflour	1	Sweets	3
Ground Sugar	2	Whisky	4
Jam	4		—
Milk	16		50

In addition to the above, which were certified to be pure, one sample of Butter was certified as "very poor," and one sample of Whisky as "slightly under standard."

School Accommodation.

At present there is accommodation in the schools within the Borough for 7,671 scholars, the numbers being distributed as follows :—

	Schools.	Accommodation.
Central Ward ...	4	2847
West Ward ...	3	1743
North Ward ...	4	1117
South Ward ...	3	1964

The Scheme for the inter-notification of Infectious Diseases between the School Teachers and the Health Department may now be said to be in excellent working order. It includes:—

1. Notification by Medical Officer of Health of all cases of Infectious Disease coming to his knowledge to the School Teachers and School Attendance Officer.
2. Exclusion from School of all infected children (or in certain diseases all children from an infected household) until Medical Officer of Health certifies that they may safely return.
3. Notification by School Attendance Officer and School Teachers of cases of Infectious Disease in their scholars, and exclusion from school of suspicious cases until definite word is sent by the Medical Officer of Health.

During the year the following cases have been reported by the School Teachers:—

Scarlet Fever	8
Measles	32
Whooping Cough	135
Mumps	66
Chickenpox	18
Ringworm	8
Influenza	4
Eczema, &c.	14
"Fever"	3
	288

Number of Certificates issued after investigation by M. O. H. ... 278

Number of Certificates issued by M. O. H. in respect of *Notified* Disease:

(*a*) Preliminary Certificates	233
(*b*) Final Certificates	206
Total	439

Sickness Statistics.

Owing to the kindness of the Secretaries of the numerous Friendly Societies in the Borough I have been been enabled to arrive at what I think is a complete Statement of the number of days of sickness and the amount of sick pay which has in consequence been distributed.

In the various Lodges, &c., considered, there are 5,650 members, and of these 2,190 have been in receipt of sick pay during some part of the year. In all I have records of 72,623 days of sickness, for which sick pay to the amount of £5,599 15s. 9d. was given.

I have not included in the above figures the Mutual Insurance Society of the Railway Company's Works against accident; 751 members of that were paid £1,086 for temporary disablement by accident.

Taking the members of these sick clubs as being a population to themselves, the average amount of sickness per person per annum has been 12·85 days (considerably below the usual experience of similar sick clubs), and the average duration of sickness in sick members has been 33 days.

There have been 79 deaths in the members of these various sick clubs; the average number of cases of illness to each death has thus been 28—rather below the experience of most Friendly Societies.

These figures give one a much better idea of the health of the town than death rates. "The record of deaths only registers as it were the wrecks that strew the shore, but it gives no account of the vessels which were tossed in the billows of sickness, strained and maimed as they often are by the effects of recurrent storms. Registration of sickness would tell us of the coming storms and enable us to trim our vessels to meet them." (*Dr. Lyon Playfair.*)

"It concerns a man more to know his risks of the fifty illnesses that may throw him on his back than the possible date of the one death that must come. We must have a list of the killed and of the wounded too." (*Charles Dickens*)

There are few, if any, towns in which a system of registration of sickness could be so efficiently carried out as in Crewe, and my predecessor in office, recognising that, made an attempt to organise such a system.

For a time it worked extremely well, supplying us with valuable information, and enabling us to take measures to remedy the sanitary surroundings of the sick person with immense benefit.

However, as there was no compulsion about it, and no remuneration for it, it was only natural that it should soon fall into decay.

An attempt will be made, however, with your Committee's permission and aid, to establish it once more on satisfactory lines.

Infectious Disease Prosecutions.

On the 18th of May a person named Bateman was prosecuted at the instance of your former Medical Officer of Health under section 126 of the Public Health Act, 1875, for exposing himself in a public place whilst suffering from a dangerous infectious disease, viz. :—Scarlet Fever. A fine of 10s. was imposed, the costs being remitted.

On the 24th of August information reached me that a person suffering from Scarlet Fever had left his lodgings in the town and gone to his home at Shifnal. I immediately communicated with the Medical Officer of Health of that district, and he instituted proceedings, the person being fined £1 and costs. Seeing that prosecution had been undertaken by the Shifnal Authorities, I decided to forego proceedings.

Playgrounds.

Through the kindness of Dr. Russell, Senior Medical Officer of Health for the City of Glasgow, I am enabled to bring to your notice a few hints on the question of playgrounds, which, I feel confident, will commend themselves as opportune and useful, and will enable your Council to make the best possible use of the playgrounds recently secured.

I will content myself with a few extracts from Dr. Russell's report which appear to me as important, and I would specially direct your attention to paragraph No. 4.

1. "Playgrounds are not gardens or grass plots, still less parks."

2. "Nothing affects the utility of play-spaces so much as the covering of the surface—the paving."

"It ought to be impervious, seamless and graded, so as to be always free from surface water. The natural surface will not do, whether grass or attempted grass or earth, neither will ashes or rubble or bricks or other rough material."

"Besides the deeper sanitary reasons for impervious and self-cleansing covering of open space . . . hard surface is an indispensable condition of the play of young children. Their most usual games—marbles, top-spinning, skipping-ropes, etc., require a smooth surface and nothing more. Give them hard and level space and the children will be happy."

3. "It is clear from the very fact that the utility of space for young children depends on its proximity to their home, that odds and ends of space wherever they can be found in overbuilt districts may be made useful."

"Wherever such a corner can be found, give it a suitable surface, and the children will find it out. *There is no need always to be on the lookout for something in the assets of the town. There are many bits of space which will yield a good return in health and happiness to children which will never yield anything as building lots.* There are many *cul-de-sacs*—the ends of streets which are not thoroughfares—which might be wholly or partially covered with granolithic, val-de-travers or the like, and so form an admirable play-ground and yet exist unimpaired for their primary purpose."

or spaces which will count

4. Dr. Russell strongly urges, and very rightly so, in my opinion, that open spaces very often become useless to the young *and a nuisance to the neighbourhood* by their use as recreation grounds by young men, the children being crowded out, and he recommends strict regulations and police supervision.

Personally I would go further than this, and recommend the railing off of a portion of each of the play-grounds for separate use by girls and very young children. It is a frequent sight to see "the big boy" in his rampant joy usurping the whole of the ground, whilst the girls and young children can scarcely find half-a-dozen square yards on which to pursue their more peaceful pleasures. Mothers know this, or soon find it out, and will not send their children to places where there is a risk of rough usage.

My firm conviction that these suggestion will prove of use to the Committee entrusted with the laying out of the recreation grounds has outbalanced any fear I may have had that they would be deemed out of place.

The Ventilation of Sewers.

A large number of complaints have been received, especially during the Summer and Autumn, of foul smells from the sewer openings in the streets. As was naturally to be expected these complaints originated mainly from a high portion of the district, and Ruskin Road, Walthall Street, and Nantwich Road were the seat of principal annoyance. The substitution of vertical shafts carried above the buildings have, to some extent, mitigated the evil but have by no means cured it. There appear to be several factors combining to produce the emission of foul gases from a sewer. In the first place, the majority of manhole covers which are supposed to act as ventilators do not act in this way at all, for the holes in them speedily become closed with dirt. In the manholes themselves there are often to be found branch drains delivering into the manhole at such a height above the invert as to cause considerable splashing and spraying of the sewage, and in consequence of this a diffusion of sewer gas. Again, in a large number of manholes heavy road detritus accumulates, and to this accumulation, unless it be swept away, organic matter clings, decomposes and gives off offensive gases. In a flat district like this it is a matter of extreme difficulty to secure such a fall as will render the sewers self-cleansing, and this adds to the difficulty.

I am of opinion that this nuisance can only be satisfactorily dealt with by the adoption of the two following recommendations :—

1st. That in streets where sewer gas makes its presence manifest ventilating shafts should be inserted on the line of sewer as nearly as possible mid-way between two manholes, which manholes should not be closed up but left open. In this way the vertical shaft will act as an outlet, and the manholes as inlet ventilators. The shaft should be circular in order to lessen the loss of current by friction, and should have a sectional area of at least 28 inches, *i.e.*, should be a 6-in. pipe. It is unnecessary to point out of course that the joints of such a pipe should be absolutely air-tight, and that it should discharge in a safe position away from windows and chimneys.

2nd. Adequate means of flushing sewers must be provided, the most convenient means, in my opinion, being underground tanks with automatic syphon flushes, or automatic flushing tippers, each of these to be of a capacity of about a hundred gallons. The experience of most engineers shews that flushing by means of flushing valves, that is by back-pounding the sewage, is not a method to be recommended. Whilst the sewage is accumulating deposit is bound to take place, and this deposit may not be altogether flushed away when the sewage is allowed to run off. The sides of the sewers are always left in a dirty condition, and the deposit on the sides may decompose and give off offensive gases into the sewer, or may dry, and any specific infective matter in the sewage is thus afforded an opportunity of getting into the sewer air, disease germs, when they exist in sewer air, most probably originating in this way. In addition to these objections there is always danger that the pressure on the walls of the sewer or its branches, especially at joints, is likely to lead to damage to the sewer or to escape of sewage into the surrounding soil.

It must be clearly understood that the two things recommended above are recommended to be used *in conjunction* with each other, and not separately.

It has been suggested that if householders were to flush their house drains at a certain hour on certain days in the week, and if a number of householders would co-operate in the matter, a simple and most effective means of flushing would be obtained.

It is very much to be doubted whether any scheme of this kind could be made practicable. In sanitary matters the general public usually want helping, and are not eager to help themselves.

Reconstruction of Privies and Ashpits.

A fair number of the worst of these structures have been dealt with during the year. The L. & N. W. Railway Company have converted a number of uncovered privy-middens in Charles Street to waste-water closets.

Approximately there are now within the Borough —

2614	Water Closets.
832	Waste-water Closets.
2651	Pail Closets.
264	Cesspool Privies.
66	Fixed Receptacles.
3229	Dust-bins.
1594	Uncovered Privy-Middens.
303	Covered ditto.
232	Uncovered Ashpits.
1981	Covered ditto.

As a Special Report upon this question will be presented to your Committee very shortly, I forbear making any further remarks.

As bearing upon the question, however, I give the following Table, which shews the consumption of water from 1881 to the present date. Comparing the years 1881 and 1891 (census years), when the number of inhabited houses, population, etc., are of course, perfectly correct, it will be seen that *the consumption per house or per head was slightly greater in* 1881 *than in* 1891, in spite of the much larger number of water closets, baths, etc., at the later date, and the increased consumption for municipal purposes.

Table 36.—Water supplied in Crewe per annum, consumption per head per day, etc.

Year	Quantity consumed during year in gallons	No. of Inhabited Houses	Population	Consumption per house per annum in gallons	Consumption per head of population per day in gallons
1881	65,562,000	4,588	24,385	14,290	7·36
1882	57,270,000	4,967	24,835	11,530	6·31
1883	62,886,000	5,062	25,310	12,423	6·80
1884	70,887,000	5,162	25,810	13,732	7·42
1885	82,953,000	5,267	26,335	15,749	8·63
1886	77,604,000	5,378	26,890	14,428	7·35
1887	81,611,000	5,445	27,225	14,988	8·21
1888	93,475,000	5,542	27,712	16,866	9·31
1889	86,398,000	5,612	28,060	15,395	8·43
1890	83,014,000	5,773	28,766	14,379	7·97
1891	86,793,000	6,542	32,783	13,267	7·25
1892	85,028,000	6,816	34,080	12,474	6·83
1893	95,848,000	7,125	35,388	13,452	7·42
1894	113,769,300	7,190	35,950	15,823	8·67
1895	119,236,000	7,404	37,020	16,104	8·82
1896	128,333,700	7,638	38,190	16,802	9·20
1897	128,588,000	7,945	39,725	16,183	9·07

The figures for 1891 and all succeeding years apply to the extended Borough; those previous to 1891 apply only to the old Borough (Church Coppenhall excluded).

Removal of Refuse.

It is a pleasure to be able to report that as the routine or house-to-house work of the Scavenging Department has become better established, the cost of removal has decreased.

It is but fair to remark, however, that though the total number of loads removed shews a distinct increase upon that of previous years, this increase has been principally in the day-work. The night-work, which is more expensive to the Department, *has* increased, but not in the same proportion as that done in the day.

But in 1896, when a decrease of 3¼d. per load was effected, it is also but fair to point out that a *decrease* took place in the night-work to the extent of some 200 loads; in 1897 there was an *increase* of over 100 loads in the night-work, and yet a saving of 2¾d. per load has been effected.

Though exactly 1,000 more loads have been removed and dealt with during 1897 as compared with 1896, the extra cost to the Department has only been £34. The cost per load in 1897 was 3/8½, as compared with 3/11¼ in 1896, 4/2½ in 1895, and 4/5¼ in 1894.

The growth of the work will be readily seen from the following statistics.

	1894.	1895.	1896.	1897.
Privies and Ashpits Emptied	11,969	12,919	17,788	25,383
Privy Pails Emptied	99,010	109,374	110,996	114,368
Dustbins Emptied	56,619	62,200	65,170	67,700
NUMBER OF LOADS REMOVED—				
Day Work ...	5,367	5,462	6,639	7,558
Night Work ...	4,496	4,914	4,769	4,851
Total...	9,863	10,376	11,408	12,409
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Total Cost	2187 1 4	2180 15 3	2243 0 10	2277 6 8
Cost per load ...	4s. 5¼d.	4s. 2½d.	3s. 11¼d.	3s. 8½d.
Cost of Day Work per load ...	...	...	...	2s. 7½d.
Cost of Night Work per load ...	...	...	...	5s. 3½d.

The fluctuation in cost during different seasons will be seen from the following statement:—

	£	s.	d.		£	s.	d.
January	198	15	7	July	190	5	10
February	199	4	3	August	197	7	5
March	195	14	11	September ...	191	11	10
April	182	14	11	October	179	9	10
May	184	12	1	November ...	176	1	2
June	185	7	8	December ...	196	1	2

It will be seen that from the end of November to the beginning of April the cost is increased. The increase during July, August, and September resulted from the fact that the hot weather caused a very large number of "requisitions to empty ashpits" to be handed in, and a corresponding temporary increase in the staff to be made.

Refuse Disposal.

The dry refuse of the town is in part 'tipped' at the Farm, in part used as fuel for the boiler at the pumping station and for the production of acidulated night-soil, and in part 'tipped' in convenient localities inside and outside the town. Complaints have on several occasions been received of nuisance arising from these 'tips,' and they have in consequence had to be abandoned.

Coincidently with the extension of the area built upon in the town there is bound to be an increasing difficulty in finding an outlet for ashpit refuse. Tipping cannot be regarded in any sense as a Sanitary measure; indeed it requires the greatest care on our part to avoid possible nuisances, and I have found it necessary to make the following conditions before any refuse is tipped:—

1. A written request by the owner or occupier of the land must be obtained, the person signing the same to accept all responsibility in the event of any nuisance arising.

2. In the case of a hollow requiring to be filled up such hollow to be thoroughly drained before any refuse is tipped.

3. The owner or occupier of the land to undertake to keep the refuse constantly covered by means of a layer of soil.

4. Dry ashpit refuse only to be tipped.

5. The owner or occupier to be advised beforehand of the provisions of the Bye-laws and of the Public Health Acts (Amendment) Act, 1890, as to building on such 'made' land.

In spite of these precautions, there is danger to be apprehended from a continuance of the practice, and at all events it is wasting material which has a distinct value as fuel.

In a very large number of towns it has for years been demonstrated that dry household refuse is a combustible article. It has for some time been utilised here as fuel for the boiler at the pumping station. The least sanguine engineers place its calorific value fairly high, and state that one pound of the poorest refuse will evaporate at least one pound of water from 212° F. You have, roughly, about 7,000 tons of combustible refuse per annum available. Further, you have to dispose of this so as not to cause a nuisance or injury to health.

A Board of Trade Provisional Order for the supply of electricity for public and private use within the Borough has been obtained, and if your Council carry out this supply yourselves, it is submitted that the necessary steam power can be mostly, if not wholly generated from the dry ashpit-refuse of the town, and a sanitary as well as an economical advantage gained.

The provision of a Refuse Destructor will, before long, become an absolute necessity. Many towns have missed their way by providing an electric lighting installation at one time and a Refuse Destructor at another, and have in consequence not reaped the full advantage of the combination.

There appears to be no reason why Crewe should not, by combining the two schemes *ab initio*, secure the fullest measure of benefit from both.

Removal of Trade Refuse.

In August your Committee decided, in the exercise of the powers conferred upon you by the Public Health Act, 1875, not to remove trade refuse unless a request was made for its removal, in which case a charge of 3/- per load was to be made. Representations were made, however, as to the 'injustice' of the charge, and it was rescinded.

As the removal of *bona-fide* trade refuse proves a severe tax on upon the resources of the Department, I advised that tradespeople should be requested to carry out certain measures to facilitate its removal, and a circular letter embodying these recommendations was sent out. The following is an abstract:—

1. House or domestic refuse must in all cases be kept entirely separate from trade or shop refuse. Neglect of this may mean delay in removal.

2. The Corporation have no intention of altering the arrangements for removal of the refuse of Butchers or Fishmongers, which will continue in force as before.

Owners of private Slaughter-houses, Gut-scrapers, and Tripe-boilers will be required to carry out, as before, the Bye-laws dealing with the storage and removal of their special refuse.

3. All such refuse as paper, straw, cardboard boxes, packing material, etc., should be placed in strong sacks, sufficient to contain a fortnight's supply. All sacks should have the initials or name of the tradesman clearly marked on them to prevent confusion.

4. All such receptacles or sacks, etc., will be considered as ashpits within the meaning of the Public Health Act, 1875, and any other Sanitary Acts; and the tradespeople will be expected to maintain them in good repair, and to repair or renew them when, in the opinion of the duly authorised Officials of the Corporation, this is needed.

5. All trade or shop refuse will be removed as far as possible at the same time as house or domestic refuse; but the Town Council accept no responsibility in the event of any nuisance arising from an accumulation of trade refuse, if the same be not removed.

6. The attention of tradespeople is called to the following provision of the Towns Police Clauses Act, 1847:—"Every person who throws or lays any dirt, litter, or ashes, or nightsoil, or any carrion, fish, offal, or rubbish on any street . . . . shall be liable to a penalty of forty shillings for each offence, or in the discretion of the Justice before whom he is convicted, may be committed to prison, there to remain for a period not exceeding fourteen days."

7. Tradespeople are earnestly requested to keep the contents of any receptacle containing animal or vegetable matter as DRY as possible. The observance of this rule will tend to prevent the occurrence of a nuisance.

8. In cases where any tradesman desires to dispose of the refuse of his own trade himself, the Corporation have no wish to interfere with this arrangement, provided always that the following conditions are observed :—

(*a*) The refuse must be *bona-fide* trade or shop refuse.

(*b*) *The refuse must be produced on the tradesman's own premises.*

(*c*) The refuse must be such as it is intended to remove for sale, etc.

(*d*) *The refuse must be kept so as not to create a nuisance.* If a nuisance be created by it, the refuse may be removed by the Corporation, and the tradesman owning the same may be liable to a penalty under the Public Health Act, 1875.

Your Committee will probably at no distant date have to reconsider this question.

Sewage Disposal.

The particulars as to the size, cost, &c., of the Sewage Farm has been fully discussed in the Report of my predecessor for 1896.

Complaints have been received from an adjoining local authority of the passage of crude sewage at times into the North Brook, and a Sub-Committee was appointed to investigate and treat these complaints.

A large number of minor sources of pollution of both brooks were reported by me, and notices have been issued for their removal.

The manufacture of the acidulated nightsoil manure is being continued. This is sold, though only in small quantities, to some farmers at the nominal introductory price of 1/- per load, the largest part of it being utilised on the Sewage Farm.

During the year I made some experiments with the ash-heap at the sand-hole on the North side of the Farm with a view of determining whether any real purification was effected by the passage of sewage through it.

After testing the sewage in the carrier emptying into the ash-heap for lead and finding it absent, I dissolved a large quantity of sugar of lead in the sewage, went below to where the clear effluent appeared, and tested this every five minutes, fully expecting to have to wait some hours before the lead put in above would appear; to my surprise it appeared on the second time of testing (ten minutes after being put in).

Further experiments shewed that it occupied 7 minutes in traversing the ashheap.

Analyses were also made of the crude sewage and the effluent from this improvised filter, and shewed that though the organic ammonia in the crude sewage was equivalent to 6·4 parts per million, it was reduced to 2.2 parts in the effluent.

I regard the ash-heap as being simply a "bacteria bed," and as one capable of improvement.

A Local Government Board Inquiry was held on the 10th August into an application of the Council to borrow £9000 for sewage disposal purposes. Of this, £8700 was for the purchase of 42 acres of land held on lease from Col. Meredith, and forming part of the South side of the Farm, and £300 was for the re-sewering of Buxton Avenue and Brooklyn Street. The cost of the land would thus be £207 per acre. The Board have granted their sanction to the loan.

I am obliged to Alderman Thomas for directing my attention to the following paragraph which appeared in the *Standard* of February 22nd in the present year. Referring to the appointment of a Royal Commission to inquire into the bacterial methods of sewage disposal, the writer proceeds :—

"Innumerable solutions of the (sewage disposal) difficulty have been proposed and tried. Chemical, electrical, and mechanical methods of treatment, including the most fantastic schemes, have been advanced in the name of science by most enthusiastic advocates. Bewildered Sanitary Boards have adopted this, that, and the other plan, with a pathetic reliance on large promises of its promoters. The delusive hope of making a profit out of the stuff is responsible for a great number of the failures ; but it is now pretty well abandoned, and the modern alchemist, who would transmute filth into gold, has fallen into discredit. Sanitary engineers generally recognize that sewage is a nuisance which cannot be got rid of save in exceptional circumstances, without spending money. The problem for them is, first, how to dispose of it effectually, and secondly, how to do so at the least expense. Up to the present time no reply of general application has been found. The only method that can be said to give really satisfactory results is sewage farming, *but its successful employment requires conditions which are not very often met with.* All the other alternatives now in use are more or less imperfect and objectionable.

"Probably no method will ever be found suitable for universal adoption; but something very much better than what we have at present is urgently needed, both for large and small towns.

"There is some hope that it may be supplied by the application to sewage of those new principles which the study of bacteriology has disclosed during the last ten years. It has been shown that the destruction of organic refuse is naturally brought about by the agency of micro-organisms. The disappearance of decomposing substances in soil and in water is explained by this principle, and the question has arisen whether it cannot be artificially applied to the rapid destruction of sewage. Experiments have been carried out to test the feasibility of the process in the United States, at Sutton, at Exeter, and at the Barking outfall of the London sewers.

"Mr. Dibdin, the late Chemist to the County Council, has recently published a highly favourable account of these experiments at Barking. They eventually succeeded in treating half-a-million gallons a day with very satisfactory results, according to Mr. Dibdin; and at Exeter, the "septic tank," as it is called, is said to work effectively. The essential principle is the filtration of the sewage through some porous material, which becomes coated with the organisms whose function it is to consume the solid matter. The whole thing is still in the experimental stage, but it appears to promise well. If its efficacy should be confirmed by further experience, the simplicity and economy of the process would make it infinitely superior to those now in use, which are clumsy, imperfect, and expensive."

TABLE 36.—Shewing the amount of sewage which passed down the main outfall sewers, the amount of water supplied by the Corporation water mains, and the rainfall in each of 13 lunar months.

Four Weeks ending.	Sewage in Gallons.	Water in Gallons.	Rainfall in Inches.
January 9th	34,788,000	9,784,400	0·90
February 6th	32,935,000	9,594,320	1·71
March 6th	37,303,000	9,928,590	1·35
April 3rd	38,993,000	9,801,280	1·35
May 1st	32,523,000	9,707,840	3·20
May 29th	32,351,000	10,534,750	2·70
June 26th	31,338,000	10,513,250	2·83
July 24th	29,705,000	11,165,130	2·04
August 21st	31,488,500	10,588,990	6·44
September 18th	36,985,000	10,198,710	2·98
October 16th	35,593,000	10,180,140	3·40
November 13th	32,864,000	10,283,320	2·55
December 11th	40,262,000	10,005,390	5·67
TOTAL ...	447,128,500	132,286,110	37·12

NOTE.—The water supplied to nearly 850 houses owned by the L. and N. W. Rly. Co., and to the Railway Works, does not pass through the Corporation Meters, and must be taken into account when considering the above Table.

As my predecessor in office pointed out, there are discrepancies of a puzzling nature in the preceding Table. Take, for example, the figures for the weeks ending January 9th and August 21st.

In the latter we have a rainfall more than seven times as great and nearly one million gallons more water consumed, yet the volume of sewage passing down the outfall sewers is nearly three million gallons *less*.

A glance at the Table will reveal numerous other puzzles of a similar nature. Whether the Note to the Table contains the solution of the difficulty I am unable to say, but the question is one which it might be useful to consider.

Back Streets.

In August, I reported to your Committee as to the unsatisfactory condition of many of the back streets in the Borough, and cited two in particular as examples—one between Farrington Street and Alfred Street, and another between Ludford Street and Chetwode Street.

On the report being referred to the Works Committee, plans and estimates were submitted for the making of the two back passages named, but it was eventually decided not to undertake this work at present. The streets, however, were ordered to be swept and cleaned, under section 27 of the Public Health Acts (Amendment) Act, 1890, the expenses to be apportioned between the respective occupiers of the buildings situated in each passage.

It is to be hoped that at no distant date your Council will treat these and a number of others as private streets within the meaning of the 150th section of the Public Health Act, 1875.

A number of passages and yards are paved with 'kidney stones,' or cobblestones, and is a practical impossibility to keep the interstices between these clean. In some parts of the town the spaces have been filled in with a kind of asphalt, and the surface rendered level and impervious—a measure which will ensure cleanliness at little trouble.

The Cleaning of Yard Gullies.

In August, I reported to your Committee that the yard gullies of the majority of houses in the town seldom or never received any attention. It was pointed out that choked gullies frequently led to choked drains, and that in fact "for the want of a nail the horse was lost." Very few people know the particular manner in which a gully can be best cleaned out, and many people pull the trap out bodily, turn it upside down and knock the dirt out of it on to the ground, thus breaking the joint between the gully and the first pipe, and in many cases breaking the trap also. Other people adopt a more primitive method, knocking a hole through the bottom of the trap with a poker, or pushing the obstructing matter through the trap into the drain. Inasmuch as danger to the health of the inhabitants is bound to result from such procedures, as well as loss to the owners of property, I advised your Committee to appoint a man to carry out the work of cleaning out gullies.

Your Committee at that time empowered me to engage a man to do the work for a month as an experiment. The arrangement proving satisfactory, I was further empowered to continue his appointment for such a length of time as might be deemed necessary, and to pay him 15/- per week. I regard the arrangement as of equal importance to the proper scavenging of the district.

SANITARY INSTITUTE CONGRESS.

In September your Chairman, together with the Sanitary Inspector and myself, went as delegates to the 16th Congress of the Sanitary Institute of Great Britain, held at Leeds.

It would be a matter of extreme difficulty to review the whole of the work done by this Congress.

Meetings of Municipal Representatives, Medical Officers of Health, Municipal and County Engineers, Sanitary Inspectors and others, were held, and papers read and discussed dealing with the sanitary problems of the day. Visits were paid to several Refuse Destructors, Sewage Works, Fever Hospitals, Corporation Baths, Electric Generating Station, Sanitary Appliance Works, and numerous other places where your delegates gleaned much information which will be of value in their Municipal work.

Amongst other things, papers were read on disinfectants and disinfection, housing of the working classes, fever hospital construction and furnishing, disposal of refuse, the action of water upon lead, infant mortality, the combined drainage system, and school hygiene, whilst almost the whole of one day was occupied in the reading and discussion of six papers on sewage treatment. Copies of these latter papers and the discussion upon them have been submitted to most if not all of the members of your Committee. Though the authors of these different papers did not entirely agree as to detail there was a unanimity in the principles advocated. Speaking generally, the chemical treatment of sewage upon which so many local authorities have in the past, and are still, spending immense sums of money was disapproved, and the employment of bacteriological methods was strongly urged.

The best results appear to be obtained by the filtration of sewage through a filter composed of fine coal, such as is used at Wolverhampton. By the use of this material at Wolverhampton, after a preliminary precipitation of suspended matters as high a percentage of purification as 95·3 was obtainable, judging by the amount of oxygen absorbed. In no case was the percentage of purification lower than 71·0, judging by the organic ammonia present. This process has been tried, not only in Wolverhampton, where the sewage contains a large amount of chemical refuse, and is therefore difficult to treat, but also at other places, particularly Lichfield, where the sewage contains a large proportion of brewery refuse (probably the worst kind of sewage obtainable).

In the case of Lichfield, the results obtained were undoubtedly satisfactory. It appeared to be the general opinion, "that the death-knell of the costly sewage farm had been rung, and what was of far more importance from an economic and sanitary sense the problem of sewage disposal had been at last solved, and the prevention of pollution of rivers and streams had become not only possible, but practicable."

In connection with the Congress, a large and varied Health Exhibition was held, and here the latest Sanitary and Hygienic appliances were to be inspected. The crowded attendance at this discusssion on sewage treatment, which lasted continuously for some 5 hours, betokened the immense interest in the subject, and the opinion was freely given on all sides—that the Congress had to all intents and purposes opened the eyes of the world to the question.

Returns as to Vaccination in the Borough.

I am obliged to Mr. T. W. Lovatt, Vaccination Officer, for the following figures, which he has been at considerable trouble to work out.

Births ...	1278
Successfully Vaccinated ...	921
Certificates of Insusceptibility	4
Had Smallpox	None
Died Unvaccinated	125
Postponed by Medical Certificate	49
Removed to other Districts ...	38
In Abeyance	141

From this it will be seen that an exceptionally good eye is kept on the district, about 72 per cent. of the children born having been successfully vaccinated and every single child being accounted for.

Expenditure of the Health Department.

From the following figures, for which I am indebted to the Borough Accountant, you will see that in spite of several extra items of expenditure (*e.g.*, gulley cleaning and the employment of extra clerical assistance) which were not contemplated in the Estimate, the Department was kept well within bounds.

I have made a practice of keeping an account of all money spent month by month on each Item of the Estimate, and by so doing have been able frequently to check undue and unlooked for expenditure. The printing has been exceptionally heavy owing to the renewal of stock, but it is hoped that during the present year it will be lighter in consequence.

EXPENSES OF HEALTH DEPARTMENT.

Ending March 25th.	Estimated Expenditure.			Actual Expenditure.			Increase.			Decrease.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1893 ...	1825	8	0	2302	18	2	477	10	2	...		...
1894 ...	2200	0	0	2702	15	1	502	15	1	...		...
1895 ...	2447	17	0	2476	3	0	28	6	0	...		...
*1896 ...	2549	6	0	2388	1	7	...		...	161	4	5
*1897 ...	2632	18	8	2599	18	6	...		...	33	7	2

* In those years *all* office expenses are charged to this A/c.; in previous years a General "Establishment" A/c. for all departments existed.

Meteorology.

Mr. George Latimer, the Curator of the Queen's Park, has very kindly furnished the data for the following table :—

1897.	Total rainfall in inches.	No. of rainy days.	Prevailing Wind. Days.								Mean Temperature.			
			N	S	E	W	NW	NE	SW	S E	Max'm in shade.	Mini'm in shade.	One foot deep.	Four feet deep.
January ..	0 9	10	3	1	8	3	8	3	..	5	36·4	25·8	36·8	41·4
February ..	1·71	15	1	6	2	5	4	..	5	5	45·6	34·2	38·03	38·97
March ..	1·35	22	1	7	1	8	2	1	9	2	51·2	36·06	42·2	42·4
April ..	1 35	13	..	5	8	4	4	3	1	5	55·1	38·2	44·6	44·2
May ..	5·9	15	2	3	2	10	6	5	2	1	63·9	39·2	50·1	47·0
June ..	2 83	13	2	6	7	4	8	1	2	..	71·1	50·1	57·5	52·2
July ..	2·04	7	..	2	3	7	13	3	2	1	73·3	58·7	60·5	56·2
August ..	6·44	20	..	15	1	4	2	1	3	5	71·6	48·5	60·0	58·3
September ..	2·98	15	..	4	1	7	11	2	3	2	61·2	41·8	54·6	56·0
October ..	3·4	6	..	6	7	3	5	..	4	6	56·8	38·3	51·0	53·5
November ..	2·55	10	..	6	7	6	3	..	2	6	48·5	30·56	47·03	50·63
December ..	5·67	18	1	11	3	6	1	..	1	8	42·2	30·5	41·48	46·4
Total .	37·12	164	10	72	50	67	67	19	34	46	..	..	..	..

Appendix I.

MARRIAGES.—My thanks are due to the various Clergy in the town, and the Registrar of Marriages for the following information.

I regret that it does not include marriages in Roman Catholics.

During the year 244 marriages have been solemnized of residents in the Borough. The number of persons married therefore per thousand living (the marriage-rate that is) is 12·28. This is a low rate for a town like this with a large population at ages from 20 to 60 years, but the omission above-named may be responsible for its lowness. The marriage-rate has been aptly termed the "barometer of prosperity," and is therefore valuable on other than mere statistical grounds.

Appendix II.

THE COST OF THE ISOLATION HOSPITAL.

The following figures are largely borrowed from the Borough Accountant's Annual Abstracts, and will be interesting as shewing the actual expenses of carrying out a Hospital scheme from beginning to end.

	£	s.	d.
PRELIMINARY EXPENSES, such as—			
Advertising Printing, Assessors' Expenses (Plans), Competition Expenses, &c....	36	17	9
Legal Expenses, Stamps, Deputation and Inquiry Expenses, &c.	85	15	5
Cost of obtaining loan	22	6	6
Land Purchase (5 acres)	750	0	0
Architects' Commission	388	12	6
Clerk of Works	102	0	0
Advertising	13	1	11
Printing	16	0	9
BUILDERS' CONTRACT AND EXTRAS, including—			
Erection of Boundary Wall (£504), Excavating, Draining, Brickwork, Concreting, Paving, Stonework, Carpenter and Joiner's Work, Slating, Plastering, Plumbing, Glazing, Water Mains and Fittings, Gas Mains, Painting, &c.	6731	3	7
Internal Roadways—Excavating and Draining ...	111	7	2
Do. Asphalting	112	12	10
Side Road from Middlewich Street (see Note 1) ...	55	7	10
Sanitary Fittings	175	0	0
Laundry Fittings	198	5	0
Ventilators	8	12	6
Entrance Gates	37	9	8
Gas Fittings	21	16	10
Vertical Steam Boiler	92	7	2

	£	s.	d.
Grates, Stoves, &c.	146	7	3
Furniture (including private telephone and electric bells). See Note 2	390	17	9
Blinds	19	12	6
Fire Extinguishing Apparatus	19	17	0
Ambulance	95	0	0
Polishing of Floors, Cleaning, etc.	15	6	4
Additional Glazing (Lead Lights)	2	18	5
Additional Labour on side road...	8	1	4
Main Sewer from Middlewich Street	53	14	1
Sundries ... ... —	8	2	10
Road-making by Laundry Block	99	13	4
Laying out of Grounds. See Note 3	50	0	0
	£9868	8	3

Note 1.—Half the expense only of making this road is inserted, the other half being borne by the owner of the land on either side.

Note 2.—A few small accounts have yet to come in for furniture, but it is not anticipated that they will increase the amount by more than £10 or £15.

Note 3.—This sum is the cost of digging over the grounds only; the planting of trees and shrubs, preparation of 'airing grounds' for patients, &c., has yet to be undertaken.

This statement is not a complete one, for there are, it is believed, a few extras on the road-making contracts which are not included, and the cost of erecting lamps inside the grounds is not yet known.

The amount which the Local Government Board sanctioned to be borrowed was £9,000, and when the accounts are finally made up there will probably be an adverse balance of about £900. It will probably be the duty of your Committee under these circumstances to recommend an application for a supplementary loan.

Appendix III.

POOR LAW RELIEF STATISTICS.

I am obliged to Mr. C. E. Speakman, Clerk to the Nantwich Board of Guardians, for the following information :—

1. Number of *Indoor Poor* relieved during the half-year ended Lady-day, 1898 :—

Able-bodied	23
Not Able-bodied	402
Insane	22

Vagrants relieved during past year ... 5751

2. Number of *Outdoor Poor* relieved in Borough of Crewe, during the half-year ended Lady-day, 1898 :—

Able-bodied	181
Not Able-bodied	361
Insane	13

Vagrants relieved during past year ... 830

3. Cost of Outdoor Relief for Borough of Crewe, for the past year, £4207 3s. 5d.

(A)

LOCAL GOVERNMENT BOARD RETURN.

TABLE OF DEATHS during the year 1897, in the Borough of Crewe, classified according to Diseases, Ages, and Localities.

Names of Localities adopted for the purpose of these Statistics; public institutions being shown as separate localities.	Mortality from all causes, at subjoined ages.							Mortality from subjoined causes, distinguishing deaths of children under five years of age.																						
									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
													Fevers.																	
	At all ages	Under 1 year	1 and under 5	5 & under 15	15 & under 25	25 & under 65	65 & upwards		Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typ'd	Con-tinued.	Re-lapsing.	Puerper'l	Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhœa & Dysentry.	Rheumatic Fever.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Influenza.	Injuries.	All other Diseases.	TOTAL.
Central Ward ..	145	41	12	4	5	51	32	Under 5	..	..	1	1	..	..	..	..	..	..	1	..	1	10	..	..	18	..	..	1	20	53
								5 upwds.	..	1	1	..	..	1	..	..	2	..	1	..	1	1	1	7	23	13	1	1	38	92
West Ward ..	162	55	29	4	2	39	33	Under 5	..	2	2	1	..	..	..	..		..	..	..	5	18	..	..	26	..	..	..	30	84
								5 upwds.	..	1	..	..	..	..	..	..	..	..	3	..	..	3	2	5	13	10	1	2	38	78
North Ward ..	153	56	32	4	3	37	21	Under 5	..	..	1	1	..	..	..	..	..	..	..	1	10	24	..	..	25	1	..	..	25	88
								5 upwds.	..	1	..	..	..	1	1	..	..	..	..	..	..	..	1	9	15	13	1	3	20	65
South Ward ..	132	57	20	3	5	41	26	Under 5	..	2	..	2	..	..	..	..	..	..	1	..	9	4	..	..	10	..	..	..	29	57
								5 upwds.	..	..	1	..	..	1	..	..	1	..	3	..	..	1	1	7	13	17	1	..	29	75
L. & N. W. Ry. Co.'s Hospital ..	4	..	..	..	..	2	2	Under 5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
								5 upwds.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	4
Cottage Hospital	12	..	1	1	4	6	..	Under 5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
								5 upwds.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	2	6	11
Isolat'n Hospital	3	..	..	3	..	..	..	Under 5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
								5 upwds.	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Total ..	611	189	94	19	19	176	114	Under 5	..	4	4	5	..	..	..	..	..	..	2	1	25	56	..	..	79	1	..	2	104	283
								5 upwds.	..	5	2	..	..	4	1	..	3	..	7	..	1	5	5	29	64	56	4	11	131	328

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

Deaths occurring outside the district among persons belonging thereto	16	..	..	..	..	6	9	Under 5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1
								5 upwds.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	6	..	..	7	15
Deaths occurring within the district among persons not belonging thereto.	6	2	1	..	1	2	..	Under 5	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	3
								5 upwds.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	3

(B)

LOCAL GOVERNMENT BOARD RETURN.

Table of Population, Births, and new cases of Infectious Sickness coming to the knowledge of the Medical Officer of Health, during the year 1897, in the Borough of Crewe; classified according to Diseases, Ages, and Localities:—

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	Population at all Ages.		Registered Births.	New cases of sickness in each locality, coming to the knowledge of the Medical Officer of Health.									Number of such cases removed from their homes in the several localities for treatment in Isolation Hospital.			
	Census 1891	Estimated to middle of 1897		Aged under 5 or over 5.	Scarlatina.	Diphtheria.	Membranous Croup.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Erysipelas.	Small-pox.	Scarlatina.	Diphtheria.	Enteric or Typhoid.
Central Ward ..	..	10,395	..	Under 5..	13	6	1	..	..	..	..	2	..	2	..	..
				5 upwards	10	18	..	12	..	..	3	35	..	4	..	..
West Ward	..	9,280	..	Under 5..	16	4	..	..	..	..	..	1	..	1	..	..
				5 upwards	29	8	1	4	..	..	..	25	..	7	..	..
North Ward (H) ..	..	9,790	..	Under 5..	11	1	2	1	1	..	..	3	..	1	..	1
				5 upwards	25	8	..	3	3	..	2	22	..	4	..	3
South Ward	..	10,260	..	Under 5..	36	..	1	..	..	..	..	1	..	3	..	..
				5 upwards	61	16	..	8	..	1	2	26	..	7	..	..
Totals ..	32,783	39,725	1278	Under 5..	76	11	4	1	1	..	..	7	..	7	..	1
				5 upwards	125	50	1	27	3	1	7	108	..	22	..	3

"Notification of Infectious Disease" compulsory in the District since October 1st, 1896.

Isolation Hospital used by the sick of the District is situated in the North Ward (marked H).

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Table 37.—Classification of Deaths in the Borough of Crewe.

	0-1 Year.	1-5	5-15	15-25	25-65	Over 65	Total.	
							1897	1896
Class 1.—ZYMOTIC DISEASES.								
Order 1—Miasmatic								
1 Small Pox	..	..	..	..	..	..	..	..
2 Measles..	1	..	..	..	..	..	1	9
3 Scarlet Fever	2	2	3	..	..	..	7	16
4 Typhus	..	..	..	..	..	..	..	..
5 Enteric or Typhoid	..	..	2	2	..	..	4	9
6 Diphtheria	..	9	2	.	..	..	11	10
7 Whooping Cough	16	9	1	..	..	..	26	8
8 Influenza	..	..	..	..	4	..	4	3
9 Other Diseases	..	..	..	..	..	..	..	..
Order 2—Diarrhœal								
Diarrhœa and Dysentery	45	11	..	..	3	2	61	22
Order 3—Malarial								
Order 4—Venereal								
Syphilis	1	..	..	..	2	..	3	..
Order 5—Septic								
1 Erysipelas	..	..	..	..	4	3	9	4
2 Pyæmia, Septicæmia	..	..	..	1	1	..	2	1
3 Puerperal Fever	..	..	..	1	2	..	3	2
II.—PARASITIC DISEASES.								
Thrush	..	..	..	..	..	..	..	..
III.—DIETIC DISEASES.								
1 Alcoholism	..	..	..	..	2	..	2	3
2 Inanition of Infancy	2	..	..	..	..	..	2	4
3 Rickets	..	..	..	..	..	..	..	..
IV.—CONSTITUTIONAL DISEASES.								
1 Rheumatic Fever	..	..	..	1	3	1	5	1
2 Rheumatism	..	..	..	..	2	..	2	1
3 Gout	..	..	..	..	..	..	..	..
4 Cancer	..	..	..	..	11	4	15	22
5 Tabes Mesenterica	8	3	1	..	..	..	11	4
6 Tubercular Peritonitis	..	..	..	..	1	..	1	3
7 Tubercular Meningitis	..	5	2	..	..	..	7	4
8 Hydrocephalus	..	..	..	..	..	..	..	..
9 Phthisis	..	..	..	4	24	1	29	33
10 Other forms of Tuberculosis	..	..	..	2	1	..	3	2
11 Diabetes	..	..	..	..	1	2	3	4
12 Anæmia	..	..	..	..	..	..	..	2
V.—DEVELOPMENTAL DISEASES.								
1 Premature Birth	20	1	..	..	..	..	21	18
2 Congenital Malformation	..	..	..	..	..	..	..	1
3 Old Age	..	..	..	..	..	35	35	33
VI.—LOCAL DISEASES.								
Order 1—Nervous System								
1 Inflammation of Brain	..	7	..	..	1	..	8	2
2 Apoplexy, Cerebral Softening	..	..	..	..	17	12	29	22
3 Insanity	..	..	..	..	2	1	3	..
4 Epilepsy	..	..	..	..	1	..	1	..
5 Convulsions, Eclampsia	15	8	..	..	..	..	23	13
6 Diseases of Spinal Cord	..	..	..	..	1	..	1	3
7 Other Diseases	2	1	1	2	6	1	13	6
Order 2—Organs of Special Sense								
1 Ear	..	..	..	..	..	..	..	..
Order 3—Circulatory System								
1 Disease of Heart, Valvular	..	1	3	2	5	6	17	9
2 Disease of Heart, Undistinguished	..	..	1	..	23	15	40	33
3 Syncope	..	..	..	..	3	3	6	3
4 Aneurism	..	..	..	..	3	..	3	..
5 Other Diseases of Blood-vessels	1	1	..	..	..	1	3	5
Order 4—Respiratory System								
1 Laryngitis	..	1	..	..	..	..	1	1
2 Croup	..	..	..	..	..	..	..	..
3 Bronchitis	24	14	1	2	10	17	68	86
4 Pneumonia	17	17	1	..	21	5	61	71
5 Pleurisy	..	..	..	..	2	..	2	..
6 Other Diseases	5	2	..	..	3	3	13	4
Order 5—Digestive System								
1 Dentition	1	..	..	..	..	..	1	2
2 Diseases of Stomach	5	..	..	..	2	2	9	2
3 Enteritis	..	..	..	..	..	..	..	7
4 Obstructive Diseases of Intestine	..	..	..	..	2	1	3	2
5 Peritonitis	..	1	..	..	1	..	2	5
6 Ascites	..	..	..	..	..	..	..	..
7 Cirrhosis of Liver	..	..	..	..	..	1	1	1
8 Jaundice, &c.	..	..	..	..	1	..	1	..
9 Other Diseases	..	..	..	..	1	1	2	4
Order 6—Lymphatic System								
1 Spleen	..	..	..	..	..	..	..	..
Order 7—Glandular System								
1 Bronchocele	..	..	..	..	..	..	..	..
2 Addison's Disease	..	..	..	..	..	..	..	..
Order 8—Urinary System								
1 Nephritis	..	..	..	..	3	..	3	7
2 Bright's Disease	..	..	..	..	1	..	1	..
3 Other Diseases	..	..	..	..	..	..	..	1
Order 9—Reproductive System								
1 Male Organs	..	..	..	..	..	..	..	1
2 Female Organs	..	..	..	..	..	..	..	..
3 Abortion	..	..	..	..	..	..	..	..
4 Puerperal Convulsions	..	..	..	..	2	..	2	2
5 Placenta Prævia, Flooding	..	..	..	..	3	..	3	..
6 Other Accidents of Child Birth	..	..	..	..	..	..	..	3
Order 10—Bones and Joints								
1 Caries, Necrosis	..	..	..	..	..	..	..	..
2 Arthritis	..	..	..	..	1	..	1	..
Order 11—Integumentary System								
1 Eczema	..	..	..	..	..	..	..	..
2 Ulcer of Leg	..	..	..	..	..	..	..	..
VII.—DEATHS FROM VIOLENCE.								
Order 1.—Accidents								
1 Suffocation	3	1	..	..	..	..	4	1
2 Burn	..	..	..	..	..	..	..	5
3 Other Causes	..	1	1	..	4	1	7	9
Order 2—Homicide								
Order 3—Suicide								
1 Drowning	..	..	..	..	1	..	1	1
2 Poison	..	..	..	..	..	..	..	..
3 Cut or Stab	..	..	..	..	..	..	..	..
4 Hanging	..	..	..	..	..	..	..	1
5 Run over by Train	..	..	..	..	1	..	1	..
VIII.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES.								
1 Dropsy	..	..	..	..	..	1	1	..
2 Debility	12	..	..	..	..	..	12	14
3 Marasmus	7	1	..	..	..	..	8	13
4 Tumour	..	..	..	..	..	..	..	..
5 Abscess	..	..	..	..	..	..	..	..
6 Natural Causes	..	..	..	1	2	..	3	1
Total	190	97	18	19	183	120	627	568